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MASSACHUSETTS ASSOCIATION

OF

BOARDS OF HEALTH

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AN OFFICIAL QUARTERLY JOURNAL OF INFORMATION FOR  
THE PUBLIC, CONTAINING THE RECORDS OF  
THE MASSACHUSETTS ASSOCIATION OF  
BOARDS OF HEALTH.

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Vol. IV.

JANUARY, 1894.

No. 1.

SUBJECT :

Plumbing Inspection in Massachusetts; and  
the Appointment of Inspectors.

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# MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH.

*Organized 1890.*

[ This Association as a body is not responsible for statements or opinions of any of its members.]

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VOL. IV.

JANUARY, 1894.

NO. I.

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## ANNUAL MEETING

OF THE

### Massachusetts Association of Boards of Health.

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THE annual meeting of the Massachusetts Association of Boards of Health was held at the Parker House, Boston, on the afternoon of Thursday, Jan. 25, 1894, at three o'clock, the President, H. P. Walcott, M. D., presiding.

THE CHAIRMAN. Will the Association come to order, and listen to the reading of the records by the Secretary? (The records were then read by the Secretary, L. F. Woodward, M. D.) If there is no objection to the records as read, they will stand as the records of the last meeting of this Association. Has the Executive Committee any report to make?

The Secretary then presented a list of names for membership in the Association. On motion, it was voted that the Secretary cast a ballot in behalf of the Association for the election to membership of the following named gentlemen :

W. T. Clark, M. D., Worcester.  
Theodore Pinkham, Brookline.  
James M. Codman, Jr., Brookline.  
Edw. F. Porter, Watertown.  
Philip P. Connealy, Watertown.  
J. L. Breshnihan, Fitchburg.

O. P. Porter, M. D., Lowell.  
Geo. A. G. Stickney, Salem.  
Wm. H. Gove, Salem.  
Jesse Robbins, Salem.  
Wm. H. Fullam, Salem.  
Tucker Deland, Brookline.

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Dr. Fox then submitted in behalf of the committee on nominations the following list of names for officers of the Association for the ensuing year, and it was voted that the Secretary cast a ballot for these names in behalf of the Association, which was done, and the officers for the following year were declared to be the following :

FOR TWO YEARS.

C. H. MORROW, Gloucester.

EDWIN FARNHAM, M. D.,

Cambridge.

G. L. TOBEY, M. D., Lancaster.

N. HATHAWAY, *Chairman,*

G. H. BABBITT, Boston.

The Treasurer's report was then read, as follows:

## 1893.

Balance from 1892 . . . . .	\$156.27
Annual Assessments . . . . .	276.00
	<hr/>
	\$432.27

Stenographic Reports of Meetings . . . . .	\$65.50	
Postage . . . . .	18.85	
Printing. . . . .	17.55	
Dinners for Invited Guests . . . . .	3.00	
		\$104.90
Balance to 1894 . . . . .		327.37
		<u>\$432.27</u>

JAMES B. FIELD, *Treasurer.*

WM. T. SEDGWICK, *Auditor.*

The CHAIRMAN. If there be no objection, the report of your Treasurer will be received and placed on file. Are there any committees to report? I believe, Judge Smith, that you are chairman of the committee which was to report at this meeting.

HON. E. IRVING SMITH. I believe, Mr. Chairman, that we were appointed a committee to report recommendations in reference to the Statute passed last year relative to the plumbing law, and the committee herewith submits its report. This report takes up the Act section by section, and makes certain observations. I suppose that the members of the Association are familiar with the terms of the Act. At all events, if they have wrestled with it as much as the Waltham Board of Health has, I think every word of it will be graven on their memory.

TO THE MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH:

*Gentlemen:*—Your committee was appointed at the last meeting of the Association to consider the Statute in reference to plumbing recently passed by the Legislature, being Chapter 477 of the Acts of 1893, and to make such recommendations in regard to proposed changes in the Statute as might seem advisable. Your committee has, therefore, considered the Act in question and endeavored to arrive at some conclusions in reference to it.

Section 1 of the Act provides for licensing plumbers who may engage in the business of plumbing after the passage of the Act. No provision is made with reference to registration or licensing of plumbers who were engaged in the business at that time. As a practical matter, plumbers frequently find it inconvenient, when they undertake to do work in localities where they are not known, to prove whether they were in business at the time the Act was passed. If they were, they need no license; but if they were not they must produce a license from some city or town in this Commonwealth. As a matter of convenience to plumbers, it would be well, perhaps, if the Act could provide for the licensing or registration of plumbers who were engaged in business at the time of the passage of the Act but who are not now within its terms. There may be some doubt, which your committee has not had time to investigate and settle, whether such a provision, absolutely requiring the registration of all plumbers, whether engaged in business at the time of the passage of the Act or not, would be constitutional; but at all events such provision might be made permissive,—that is, the plumbers might be allowed to register with the Boards of Health and obtain a certificate to the effect that they were engaged in the business of plumbing at the time of the passage of the Act. They would then be provided with a ready means of proof of their qualifications to do business.

Your committee have no recommendations to offer with regard to changes in Section 2 of the Act. That Section provides for applications to the Board

of Health by persons desiring to engage in the business of plumbing, and for examination of such persons by the Board of Examiners mentioned in other parts of the Act.

In Section 3 your committee feel that there should be, at least, one important change. The Act fails to provide any central authority whatever which may have control over the various Boards of Examiners in the different cities and towns of the Commonwealth. As the Act now stands a person desiring to engage in the business of plumbing may apply to the Board of Examiners in the city or town where he may be. This local Board will subject the applicant to an examination, and if he pass that examination to their satisfaction the Board will certify this fact to the Board of Health, which thereupon must issue to the successful applicant a license. The license when once granted is good throughout the Commonwealth. It is apparent, therefore, that plumbers who have been examined in one place may do work in another place. Now these Boards of Examiners will probably have no uniform standard of excellence which they will require applicants to attain, and it may frequently happen that plumbers who have obtained a license in a place where the examination was easy, may do work in another place where the standards are high and the examinations are hard. It is of course impossible to secure complete uniformity in the examinations to which plumbers are to be subjected from time to time by the different Boards of Examiners; but it seems to your committee that it would be possible for some central advisory body to be created which could exercise some influence over the standards of excellence to be maintained in the examinations throughout the Commonwealth. In pursuance of this idea your committee would suggest that the State Board of Health be given the right to advise local Boards of Examiners with respect to examinations of plumbers, and the right to establish a minimum per cent. which all applicants must be required, at least, to obtain. And your committee would suggest further, as the most important recommendation in this connection, that local Boards of Examiners be required to submit their examination papers to the State Board of Health for approval or disapproval before they are actually used in examinations. Your committee have suggested that this central advisory authority be the State Board of Health; but some other board might serve the purpose equally well, such as the Board of Civil Service Examiners.

Section 4 of the Act provides for the organization of the Boards of Examiners, for the manner in which examinations of applicants shall be conducted, and for the granting of licenses to plumbers, and your committee are not at all sure of the advisability of making any changes in this Section. One suggestion has, however, occurred to them which it might be well to discuss. It is possible that cases may occur where a plumber who has been licensed in a certain place and who is doing business in another place, may

be a very unsatisfactory person to the Board of Health of the place where he is actually doing work. It not infrequently occurs, as all members of the Association must be aware, that certain plumbers cause much trouble to local boards of health by continued and apparently wilful violations of the rules and regulations regarding plumbing. Such violations may be carried to an extent which would warrant the local Board of Examiners in revoking, under the provision of Section 7 of the Act, any license granted by themselves. It may be well, therefore, that the Board of Health of the place where a plumber is actually doing work, may make complaints in regard to violations of rules to the Board of Examiners where the plumber received his license, and request that such license be revoked. In the event of refusal it might be well to allow an appeal to the State Board of Health, or to whatever body may be appointed as the central authority having jurisdiction over Boards of Examiners.

Section 5 of the Act provides for the appointment of inspectors of plumbing. This Section has caused the most comment and the most diversity of opinion among those whose duty it is to enforce the law. The principle controversy is over the requirements of the Statute that inspectors of plumbing appointed under the Act shall be "practical plumbers." This provision was undoubtedly inserted for the purpose of giving plumbers control over the enforcement of plumbing regulations. The effect is to exclude from appointment all persons, however well qualified they may be by knowledge of sanitary engineering and of the needs and requirements in cities and towns in regard to plumbing, unless such persons are "practical plumbers." Such exclusion is open to the obvious objection that it appears to be a piece of class legislation; but passing over that objection we come to a more practical one. The language used appears to be open to various constructions. There seems to be as many minds as there are men as to what constitutes a "practical plumber," and your committee would suggest that if it were possible, in the event that this provision of the Statute is retained, some definition be given of what is meant by the words, "practical plumber."

But the objection of your committee goes further than to the mere vagueness of the Statute. Boards of health have been seriously embarrassed in their efforts to obtain competent men for inspectors of plumbing by the fact that in many instances the most competent persons are excluded from consideration, because such persons are not plumbers in any sense of the word. Your committee believes that at least boards of health should be left free to appoint the most competent person, no matter what his trade or business may be. We believe, however, that no inspector of plumbing should be appointed who has not a thorough practical knowledge of all that pertains to plumbing, and we, therefore, would suggest that the words,

“who shall be practical plumbers” shall be stricken out, and in their place a provision inserted that any person before appointment as an inspector of plumbing, shall pass a civil service examination designed to test his skill and technical knowledge in [practical] plumbing work as relating to house drainage and plumbing ventilation.

One other clause in Section 5 has occasioned more or less difficulty. This provides that inspectors of plumbing shall be appointed by the board of health or inspector of buildings. By reference to Section 2 of the Act we find that the intention apparently is not to give any power to inspectors of buildings except in cities and towns where such inspectors of buildings have control of the regulations regarding plumbing. There is, however, no direct reference in Section 5 to Section 2, and Section 5 is therefore open to the construction that in all cases either the inspector of buildings or the board of health may appoint the inspector of plumbing. Your committee have been informed that considerable controversy has arisen in some instances in regard to this apparent conflict between the powers of the board of health and of the inspector of buildings. Undoubtedly the intention was that the inspector of buildings should appoint the inspector of plumbing only in cities and towns where the inspector of buildings has control of the regulations regarding plumbing, and your committee is, therefore, of the opinion that the Act should be so amended as to make this matter clear.

Your committee have not found time to draft amendments to the Act covering the foregoing suggestions, but the amendments suggested might be very easily and briefly expressed, and without difficulty incorporated in the Act without destroying the structure of the Act itself. We believe that the duty of drafting such changes as may be advisable should be entrusted to a committee to be appointed for that purpose, who will follow the suggestions and instructions which may be given by the Association upon the consideration of this report. We are informed that new bills may be introduced into the Legislature up to February 1st, and it would be advisable, therefore, that any amendments be presented to the Legislature before that day.

Respectfully submitted,

E. IRVING SMITH,	} <i>Committee.</i>
J. T. MCCARTNEY,	
EDW. N. QUINN.	

HON. E. IRVING SMITH. I had not intended to make any remarks in connection with this report, because it expresses fully my own opinion in regard to this Act. As some of us suggested at the meeting which was held at Princeton, the Act is open to a great many objections, and it needs

to be thoroughly overhauled, and those defects which have become apparent to the committee have been pointed out in this report. I should, however, as the matter has been much mooted, like to ask the indulgence of the Association to read a short opinion by the City Solicitor of Waltham on what constitutes a practical plumber. The opinion was prepared after he and myself had conferred together considerably in regard to the definition of those words, and this will show what at least is one individual opinion in regard to that matter:—

OCT. 23, 1893.

HONORABLE BOARD OF HEALTH:

*Gentlemen*:—Your Board has submitted to me two questions. 1st, What is your duty under Chapter 477 of the Acts of 1893 in reference to the appointment of an Inspector of Plumbing? 2d, What does the expression “practical plumber” mean in that Act?

The Act of 1893 says, “The Board of Health . . . . . shall, within three months from the passage of this Act, appoint one or more Inspectors of Plumbing, who shall be practical plumbers, and who shall hold office until removed by said Board for cause which must be shown.”

This Statute is imperative in its terms and for the first time the Legislature has expressly created the office of Inspector of Plumbing, and has regulated the duties, tenure of office and qualifications of the incumbent. The effect of the Statute may be shortly stated as follows:—

1st. Before the passage of the Act a person employed as Inspector of Plumbing held his position at the pleasure of the Board; since its passage the appointee can only be removed for cause which must be shown.

2d. Before the Statute, the person employed need not necessarily be a “practical plumber;” since the Statute the requirement is otherwise.

3d. Before the Statute he was only an employee of the Board, wholly under the control of the Board, except so far as regulated by the ordinances of the city; since the Statute the position is of a quasi-official character with duties prescribed by the Statutes of the Commonwealth. The position of Inspector of Plumbing before the Statute differs widely from the position of Inspector of Plumbing after the Statute, first, in the duties of the office; second, in the tenure of office of incumbent; third, in the qualifications required; these considerations combined with the imperative words of the Statute, “The Board shall within three months appoint,” etc., make it clear that your Board should make a formal appointment of an Inspector of Plumbing as required by the Act of 1893.

In considering the meaning of the expression “practical plumber” we must first define the word “plumber,” the word “practical” being of

secondary importance. A plumber is a man who follows or has followed the business of plumbing; he is one who has held himself out to the community as such and been commonly recognized as such; he must have been so identified with the art or business of plumbing as to be classed with persons in that business; there could be no safer guide than general reputation in the community. You would apply the same tests as you would in determining whether a person were a butcher or a baker; a person is not a butcher if he occasionally slaughters an animal but follows some other line of business; nor is a person a baker who occasionally cooks food: the test is this: have his previous pursuits ever led him or the community in which he lives to characterize him as a "plumber?"

If you find that an applicant is a plumber, then you must decide whether he is a "practical plumber." A "practical plumber" is one who can take a kit of tools and do any ordinary job in plumbing. It makes no difference where he acquired the skill, or when, or how; no length of time as an apprentice is required in this country.

It is for your Board to decide in each case whether the applicant is a plumber; and having decided that in the affirmative, whether he can, with his own hands, do the work required of a plumber.

It is your duty, therefore, to make a formal appointment of a "practical plumber," as above defined, to fill the position of Inspector of Plumbing.

Respectfully submitted,

CHARLES M. LUDDEN, City Solicitor.

The report of the committee was then accepted.

The CHAIRMAN. The whole subject is now before you, gentlemen, and you may either go on with the general discussion or take some special action with regard to the recommendations of this report. Perhaps the most satisfactory way would be to go on with the general discussion. Of course, if such a motion is made, it can at any time be entertained. If that be your wish, I will call upon some of the members whose names appear upon this list. The Association will be glad to hear, I think, from Mr. Davlin, of Somerville.

Mr. DAVLIN. Mr. President and Gentlemen of the Boards of Health: I first desire to thank you for the opportunity that has been given to me to be with you this afternoon, not only because it has been a pleasure to me to see so many of you and meet you personally, but because it has given to me a greater liberty in disregarding the advice of my physician, who tries to limit me in regard to my diet [laughter]. I am satisfied that in the medical profession, as in the profession of which I have the honor of being a member, that of hydrostatic sanitary plumbing, there are rules that can be

evaded [laughter], and advice that can be disregarded, but the bill is the same in either or both cases [renewed laughter].

In regard to the matter which seems to be pertinent to this meeting, Mr. President, I perhaps feel a deeper interest in it than a member of a board of health pure and simple, because it appeals somewhat to me in my calling, the only trade or business at which I ever worked, and it has been my desire for many years, and that of my associate master plumbers, that some legislation should be enacted in connection with the trade — I was about to say, but shall I say the profession — of plumbing?

Nine years ago as a delegate from the Master Plumbers' Association of Boston and vicinity, I had the honor of attending the national convention of master plumbers at Deer Park, Maryland, on top of that beautiful mountain, you will remember, sir, where our honored president brought his beautiful and blushing bride. At that convention the question of the laws in the different cities and municipalities regulating plumbing was discussed at length. Each delegate to that convention had some sort of an essay to read in connection with it, and when I received the invitation to attend this gathering this afternoon, I picked up this essay that the Boston Association presented, and if I have time now, I would like to read it (it is brief) to show you that the master plumbers have long been considering just how to present to the Legislature of Massachusetts some suggestion for a law that would be broad and equitable and acceptable to that body. It is not a new thing. It is something that we have long considered necessary,— some broad, equitable law to regulate the art or trade or calling of plumbing. The master plumbers throughout the country have recognized this, and have endeavored in that organization to bring this matter about, as well as other matters, and therefore I think that I may be permitted, if the time will warrant, to read this statement that was sent in from the Boston Association. It strikes nearly and closely to the subject under consideration this afternoon, and therefore I believe it is pertinent to it. Some folks have found fault, I am told, with the charges for plumbing, but after having labored in that profession for more than thirty-five years, I feel that we should be looked upon as philanthropists [laughter], making, of course, a moderate charge for our services [renewed laughter], and no one yet, as far as I am personally aware of, has ever found any fault with us.

### THE PROGRESS OF PLUMBING.

Of plumbing, as of many other useful arts, it may be said that its progress has been slow, but markedly regular and intelligent.

From time to time theories have been advanced by visionary sanitarians whose careers, like their views, have been meteoric, but to the scientific writings of a few truly able men — thoughtful, earnest efforts, and

skill of the practical masters and journeymen — belong the credit of lifting the plumbing trade from a crude and, indeed, chaotic condition to a place in the foremost rank of our important industries until, at the present time, no branch of building construction is considered of greater importance, or receives more conscientious attention, than that of plumbing and drainage.

Well may we be pardoned for self-gratulation that such is the fact, otherwise the simile of the painted sepulchre would have renewed and intensified exemplification in every edifice erected, from the humblest to the most expensive; for science has conclusively demonstrated that from impure water, air and the different noxious gases, come the germs of many of the most destructive diseases that afflict mankind.

"Not existence, but health, is life," said the great epigrammatist, Martial.

And the poet Thomson exclaims:

"Ah, what avail the largest gifts of Heaven,  
When drooping health and spirits go amiss?  
How tasteless then whatever can be given,—  
Health is the vital principal of bliss."

These sentiments, varied by circumstances and in methods of expression, have formed the theme of the physiologists, economists and poets for ages; and it is gratifying to know that the honorable brotherhood here represented has been so largely instrumental in effecting the better preservation of health, and, consequently, in augmenting the term, usefulness and enjoyment of life.

Let us briefly consider the means by which this great humanitarian reform has been brought to its existing degree of effectiveness, and those whereby it may be still further advanced toward perfection.

The instinct that prompts men to provide themselves with shelter is common to every division of the human race; and upon the height of civilization attained depends the design, convenience and garniture of the structure for that purpose.

In this favored land we build substantial dwellings of marble, stone, brick and wood, and enshrine our Lares and Penates in temples for whose comfort and decoration the cabinet-maker, the upholsterer, the artist, the sculptor and the florist are called upon to provide and elaborate the productions of the Orient, the Occident and the Antipodes.

Unfortunately until within a few years, certain appliances and devices now considered absolutely indispensable to cleanliness and purity of atmosphere, were held to be of secondary importance to elaboration in other and far less useful directions; but the warning voice of Science, the utilized experience of innumerable members of our craft, and the quick percep-

tions of the people, caused a revolution, the scope of which was as wide and effectual as its suddenness was phenomenal.

To the public's demand for protection against the evil effects of bad domiciliary drainage and ventilation, the plumbers were prompt to respond by devising a system whereby fixtures are now placed in any desired part of a building, and so arranged that an ample flush of water so quickly disposes of sewerage matter that no taint can be detected in the atmosphere even by the most fastidious.

Moreover, progress in this direction has been such that by the proper placing and fitting of sewer, waste and drain pipes, and the use of large-size flushing pipes and bowls, in conjunction with a practical plan of local ventilation, a bathroom or water-closet may be located in any part of a dwelling without perceptible vitiation of the atmosphere,—an achievement in strong contrast with the old methods of plumbing, whereby the odor from an untrapped and unventilated waste pipe saluted one's entrance into the basement of a building, and with increasing intensity accompanied the ascent to the bathroom, where a pan water-closet, with its accumulation of filth, permeated the air with a pungency almost overpowering.

Confronted with "improvements" of such a questional character, is it to be wondered at that many began seriously to consider the advisability of a return to the primitive accommodations of their ancestors, viz., the outhouses and wash-bowls and pitchers?

At this stage of affairs the brains—the real intelligence of the trade—came naturally to the front, and by well-directed, persistent efforts, induced legislation in most, if not all, of our large cities, with the result that mandatory protective measures in the matter of drainage and ventilation were secured, which served as a foundation whereon has been built a system of plumbing so far in advance of that in vogue but comparatively few years ago that no just comparison can be instituted between them; and by which all persons who are willing to comply with the requirements of the law and to pay a fair price for honest work honestly performed, can have their plumbing done in such sanitary perfection as to relieve them from all anxiety as to sewer gas or any other mephitic dangers now universally acknowledged to be menaces to longevity, more especially to the dwellers in great cities.

Under the stimulus of important results already achieved, then let us, one and all, seek to maintain the high standard of our calling, and increase its usefulness, by assiduous study of the various causes of its exercise.

Perfection in mechanical details, while greatly to be commended and encouraged, is yet too apt to be considered the chief desideratum; but unless there be a thorough insight into the elements and conditions which demand our ameliorative aid, no permanent good can be accomplished.

Every member of our order should be familiar with the nature of the

country, soil and water in his immediate vicinity, and note with care every incident cognate to his interests, in order to form an intelligent opinion when called upon to exercise his functions in any habitation.

Certain medical authorities assert that water, if drawn through pipe of a given description, is unhealthy, if not absolutely dangerous; while others, equally respected, aver that the same water is impure in its source, and that, whatever may be the manner or material of its conduit, the danger is undiminished.

To discriminate in a matter wherein doctors disagree may be a delicate undertaking, and unwarrantable usurpation of prerogative; but upon the plumber whose reputation rests upon established evidences of his acuteness, skill and judgment, the sensible householder will rely, in preference to the theoretical vaporings of any disciple of Hippocrates, however strong his backing.

It has been said that such a thing as pure water does not exist, and in view of recent developments one may well hesitate to doubt the asseveration.

But to ascertain the purest possible supply, to know the best means of procuring the same, to be capable of its analysis, to understand the drainage, ventilation and all concomitant essentials, should be the study of every plumber desirous of attaining that eminence which pride in his profession should inculcate.

Our field is broad; our opportunities present and promising. By honest earnest effort the progress already made may be so accelerated as to leave nothing to be desired in the way of reputation and substantial emolument.

The foregoing, Mr. President, presents the ideas and convictions of the master plumbers of the Master Plumbers' Association of Boston and vicinity. For years we have been trying to secure some legislation governing the practice and art and calling of plumbing. It had been considered by our Executive Committee time and time again. We had discussed the matter in its various phases, and we were almost ready to present to the Legislature our ideas to secure legislation, when we became cognizant of the fact that a gentleman from Worcester, Mr. ————had, through the representative from that part of the State, a Mr. Roe, introduced a bill looking to the regulation of plumbing, and myself and others of the Master Plumbers' Association of Boston, who were members of the legislative committee, attended the hearings. At those hearings it was desired that the master and the journeymen plumbers, as the Act reads to-day, should demonstrate their fitness before a competent board before being allowed to pursue their branch. To the Master Plumbers' Association of Boston it appeared that the proper legislation would be to inquire into and ascertain the ability of any who might desire to enter business as a master plumber, and put upon him the responsibility of his employees. For instance, I have,

say, a couple of men and put them in a building. They do the job apparently perfectly, and they leave it. Those men are not in my employ permanently, and they go then to New York or Ohio or Maryland, and after a short time it is demonstrated that some portion of the plumbing or drainage of that building is defective, and I am holden for the work.

Now if the bill was drafted so that the responsibility rested upon the master plumber, who is supposed to have a permanency of position and location, and anything wrong should be demonstrated to us within any reasonable time, I think that would be reasonable. The Senate chairman asked me if I would draft a bill along those lines, and I invoked the aid of Mr. John S. Damrell, which he readily granted, and the hearing was adjourned for two days, I think, to give us time to present a bill according to those ideas, placing the responsibility of performing the work properly upon the master plumber who had been entrusted with it in the first place, and he, in turn, of course, being responsible also for the men whom he employed to do this work. We presented a bill along those lines, and it went to the House. I understand immediately there was amendment after amendment added to it. I am informed that there were at one time seventy-five or eighty amendments to it pending, and as a result, to use a hackneyed phrase, it was emasculated. I suppose you medical gentlemen know what that is. I have an indefinite idea what it is. I am not old enough yet probably to wholly understand it; but they put it before you in the present shape that it is in. It is not satisfactory to me; it is not satisfactory to my associate master plumbers, because it does not give to the householders, and that is what the Legislature seeks to give, as I understand it, that degree or measure of protection that it is desired they should have, and it seems to me that there is something more that should be done in relation to that bill. In fact, the best way, it seems to me, would be to tear it up and write another bill, though I must state, of course, that something has been gained in having this present bill enacted by our Legislature. It is a step forward; it is much better than what has been had before.

Now, in regard to the word "practical," which I understand has been discussed by this Association, from reading the report of the last meeting; there has been a great deal of discussion to define what was meant by "practical." At the time that the bill was presented before the legislative committee, a committee from the Journeymen's Association appeared, and they wanted to have that bill read that the Board of Examiners should consist of the chairman of the Board of Health and the journeymen plumbers, and that an engineer might be added to it. They wanted the words "journeyman plumber" in the bill as one of the examiners of whoever might desire to be examined as to their competency, and so the Legislature, when they got it into their hands, amended it so it read "practical plumber," and left

that stumbling block over which so many of us have been falling. What was meant by that was that the members of that board should be men who understood the business of plumbing. It seems to me it does not call for any great display of knowledge to determine what is meant by a "practical plumber."

I read in the paper last night that one of the Board of Aldermen in the city of Boston had sued a party that had placarded the walls before election, — "Look out for the boodler, and John F. Dever, who is a candidate for the Board of Aldermen," implying that Mr. Dever was a boodler; and upon the matter being presented, the question arose, what did "boodler" mean? It did not appear in any of the dictionaries, and therefore there was no offense at all [laughter] in calling a man a boodler, because there was no such word in the dictionary. One of the lawyers suggested that perhaps in the Century Dictionary it might be shown what it meant. The Judge said, "We take common usage as the criterion of what is meant by a word," and so it is in the matter of "practical plumber." Common usage defines what is meant by the term, and that is, a man who understands how to put plumbing work together. — a man who has put it together, a man who can put it together. That is what we understand by a practical plumber. That was what was intended to be understood before the legislative committee when that was interpolated in the act. There is no question about it at all.

It has been said that a man who can lay out a job of plumbing, can draw lines upon a paper, can locate the different fixtures, although perhaps he cannot put them there, is as practical a man as he who can.

Well, supposing that you, Mr. Chairman, had a house to plumb, and you secured a man who could draw up plans of that plumbing, who could locate the bathtub and lavatory and water-closet and all the fixtures, but when you got ready to have that plumbing done, the "boss" had gone a-fishing, the practical man, as we call him, — how long would it be, let me ask you, before you had your plumbing done? It seems to me that demonstrates what "practical" means. There is no question about it at all. So that this matter, as I look at it, and as I believe my associates look at it, should go back to the Legislature and be enacted properly. I am aware of the fact that no legislation can be affected that there won't be loopholes in. You remember, sir, that a celebrated man, one Daniel O'Connell (I presume you have heard of him) [laughter], said on one occasion, "There never was a law enacted yet that you could not drive a coach and four through." You know how our herdics drive along our streets, and a herdic will be driven through that before long, and never strike a hub either, but it is better to have some law than none at all. I believe, as I believed a year ago, that that Act should read that anyone who might desire to engage in the business as a master plumber should appear before a board of examiners and demonstrate his fitness and ability

for that business. In that way you cover the whole ground. It seems to me it would make it better for the members of the Board of Health. We ourselves would settle the question as to whether a man who has received a license in Boston can go in Worcester, or Cambridge, or Springfield. This thing would settle itself right there in that one clause. The whole matter would come to a head, and we would know who was responsible for any work. He would have a fixity of tenure; he would be in the same place year in and year out, so he could be got at in case his work was not properly done.

Now, I will conclude by saying, I thank you very much for being permitted to be with you this afternoon. I dislike always to call upon doctors any way. I never went to a doctor feeling bad yet when I did not go away feeling worse, but this afternoon I hope will be an exception. [Applause.]

THE CHAIRMAN. I will ask you to listen to Mr. McCartney, of Worcester.

MR. J. F. MCCARTNEY. Mr. President and Gentlemen of the Massachusetts Association of Boards of Health: I do not think I can add much to what has been already said on this subject by Mr. Smith, the chairman of this committee which you appointed at the last meeting, and inasmuch as I was a member of that committee and assisted in drafting the recommendations which he offered this afternoon, I think it would be wiser if I should at the present time at least refrain from the discussion, and allow some other members of the Massachusetts Boards of Health to discuss the matter; therefore I will withdraw for the present in favor of some other member of the Association.

THE CHAIRMAN. Mr. Mitchell, we shall be glad to hear from you upon this subject.

MR. MITCHELL. Mr. Chairman, I trust you will excuse me from making any remarks. My colleague here has covered the ground pretty thoroughly. I am here merely to be educated in the matter. I desire that we may have some better law in the future, but I would rather listen to remarks from some other gentlemen than talk myself.

THE CHAIRMAN. Mr. Griffith's name, of Boston, stands next upon the list. He does not seem to be present, and I will call upon Mr. Tower, of Springfield.

MR. TOWER. Mr. Chairman, the gentleman who has spoken before me has taken the wind out of my sail. I would say the subject is, of course, of such a nature that a good many different points might be taken up. I think that the committee in making the recommendations have taken two that I had already in mind, and I will give way to a general discussion, which I would like to hear in preference to making any remarks myself.

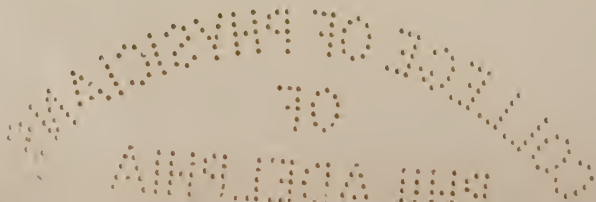
THE CHAIRMAN. Is Mr. Lyman of Holyoke present?

Mr. LYMAN. Mr. President, I have enjoyed the remarks of Mr. Davlin very much and I cannot add much to what he has already said. I agree with him in the opinion that this matter of plumbing should be carried out as he has described it,—that a master plumber is a man who can take his kit and work at the trade. In the city of Holyoke we have taken that matter in hand, and appointed a master plumber and a journeyman who can go to work and do a job, who can point out defects, and can tell those who are to do the work how to do it. It seems to me that is the way it should be done everywhere. That is about all I can say to-day.

The CHAIRMAN. Mr. Mills of Arlington.

Mr. MILLS. That is my name, Mr. President. I am troubled with that extreme timidity and excessive modesty which characterizes all master plumbers. [Cries of "Hi, Hi," and applause.] I represent the town of Arlington, which stands high—alphabetically—[laughter] and try to bear my blushing honors meekly. I am not ready, as some are, to enter upon a wholesale criticism of the law as it stands. I think its good effect has been very noticeable in the town from which I hail. The chairman of its Board of Selectmen is also chairman of the Board of Health, acting as such, and is present here to-day by invitation. The board took action in accordance with the provision of the law, and it was my fortune or lot to be chosen as inspector for the town. A great need has been found of inspection, which can be made, on the whole, in accordance with the terms of the bill or duty made incumbent upon the inspectors of the city of Boston, where plumbing inspection is under the control of building inspection only and solely, but, of course, an inspector of plumbing can be chosen to act as an agent of a Board of Health and perform such duties as they may desire.

Among the very first duties I was called upon to perform there was to visit the homes of some of the working people where diphtheria existed in threatening form, almost an epidemic, in the very outskirts of our town, near Cambridge, and their imperfect drainage was the supposed cause of the disease. I went into three houses the first afternoon where diphtheria existed and in three of those houses there were two tenements, and in only one building was there used a trap under the kitchen sink, which was supplied with the town water, and the waste was conveyed there very imperfectly through a pipe discharging in a so-called cesspool, a sort of hole in the ground in the rear of the house, an arrangement made by the cupidity of the landlord. This state of things was remedied under the provisions of this law, which I consider a start in the right direction. There are places in the town of Arlington which need looking after in the way of remedying imperfect water-closets and providing proper drainage. One of the most prominent churches in town is supplied with very poor fixtures, and they are tolerated because they do not know what can be substituted, but they are not up to the require-



ments of modern plumbing. It is the duty then of the inspector to make suggestions as he goes round and to make recommendations which can be followed, but no very decided action has been taken on account of the lack of regulations which can be enforced, and it is thought best that they should be formulated by the town before any attempt is made to have them strictly enforced.

I endorse the report of the committee, which I think is in the right direction. I hesitate about taking up any further time, except to answer any question that you might wish to ask, but I suppose you would rather discuss the matter which is brought before you and take action upon it, and therefore will resume my seat. [Applause.]

The CHAIRMAN. I see here a member from the city of Boston. Perhaps Mr. Hicks will have something to say upon the subject of plumbing.

Mr. HICKS. Mr. President: I came here to learn rather than to impart any information. I have been connected with the Board of Health so long that I have almost obtained my majority, but I do not know that I can add anything to what has been said. I am not prepared to commit myself to anything that has been said by the committee of this Association; that is, I would not want to commit myself to the report of the committee in its entirety, neither would I commit myself to what has been said by the representative of the Master Plumbers' Association.

There has been a great deal said about what constitutes a practical plumber. I think there is just about as much opportunity to discuss what should constitute a master plumber. I know master plumbers in this city—I suppose they are to be called master plumbers because they are employing plumbers and doing plumbing work—that is, business is entrusted to their hands. I think we could have no better place to put responsibility for any defects in work than we have now. There are plumbers in this city who are employing plumbers, and who have been employing plumbers for years, whose work would hardly bear inspection by anybody, a master or otherwise.

Mr. DAVLIN. Even by the Board of Health.

Mr. HICKS. Even by the Board of Health. The representative of the Master Plumbers' Association has said that a member of the Board of Examiners should be a practical plumber or a journeyman plumber. He does not criticise the fact that the majority of that board is not to be a plumber at all. One is to be the chairman of the Board of Health. Very seldom, in large cities at least, is the chairman of the Board of Health a practical plumber. The inspector of buildings is not necessarily a practical plumber, so it does not seem to me that necessarily an examiner should be a master plumber or a competent plumber, for it may be that only one, a minority of the board, would have more weight than the other two, but votes count in this country.

Mr. DAVLIN. It seems to me that some people want to vote twice,

and I recognize the fact as well as the gentleman does, but there is no law that has ever been enacted that may not be picked to pieces, but this is a step in the right direction.

Mr. HICKS. These examinations do not always bring forth the best results. In my own department in the city of Boston I know at one time we had candidates certified to us, and those who stood highest on the list—I mean by that those who received the highest per cent. from the examiners—did not prove to be the best men by any means. The main thing, in my mind, for the inspector, is a man's business qualification, his judgment, and that is a thing which we can hardly examine a man upon in any examination which we can make.

The amendments to the law which have been suggested by your committee, I think are very good. I think they are open to criticism, as is everything else that ever emanated from the hand or tongue of man. Everything that I have seen yet can be improved upon by somebody, and I think that is very susceptible to improvement. I have referred to the remarks of the gentleman who represents the Master Plumbers' Association. I speak of him because he appears to have made the most prominent remarks here to-day, and I trust he will excuse me for criticising anything that he may have to say.

Mr. DAVLIN. Being a plumber, I am used to it, sir. [Laughter.] I suppose plumbers are made to talk about. At any rate, they appear to be callous. [Renewed laughter and applause.] As sanitary men I suppose the Association is not entirely devoted to the question of plumbing. There are many other things which pertain to sanitary science that are, perhaps, entirely separate from plumbing. Of course, we have a great deal to do with plumbing, but very many members are more or less connected with other sanitary matters. This is merely one phase of the business. We have to give attention to other matters which we consider just as important as plumbing. Of course, if you have not good plumbing, you have an unsanitary condition of affairs, but there are other things which can be taken into consideration which are of as much importance. We find a want of cleanliness as important as bad plumbing. You can get up almost as bad an odor and unhealthy condition of affairs from an uncleanly condition of premises as you can from defective plumbing at least. Within a week I have had occasion during the night-time (for that is the only time to visit certain quarters of the city, after people have gone to bed) to go to their quarters to see what is to be seen, and I think if the gentlemen of this Association could go around in the night anywhere from one to two or three o'clock in the morning, and go into the quarters in the crowded section of the city and into lodging houses, they would see things there which they may read of as existing in older countries, but hardly would be prepared to find here.

The question of plumbing, Mr. President, I am not prepared to talk about at the present time, and, in fact, I am not prepared to talk upon any question, and this is rather a sudden call. I trust you will excuse me from saying anything more. [Applause.]

THE CHAIRMAN. The subject is open for general discussion, gentlemen. We shall not only be glad to hear anything that can be said upon the subject of plumbing in general, but with regard to these recommendations which have been submitted to you by the committee. It is important that some action should be taken upon them, and I would suggest that we either continue the discussion or that the Association prepare itself for some definite action upon the report of its committee.

DR. HARRIMAN, of Natick. Mr. Chairman: In the report of the investigating committee there was nothing said on Article 6 of the law, which provides for the adoption of certain rules and regulations by a town or city, and there has been a question on the part of many boards whether the Board of Health has the right to see that the town or city adopt such rules. I would like to have some light from those who know of this Article 6, which did not come under the head of the matter given to this investigating committee.

THE CHAIRMAN. Perhaps Judge Smith can help us to answer the question which Dr. Harriman has put.

HON. E. IRVING SMITH. Mr. Chairman, the very question suggested by Dr. Harriman has been considered, I know, in our own city. You are aware that the Section in substance provides that a city may pass an ordinance which will provide certain rules relating to plumbing, but it appears that the Section leaves it open to the Board of Health to pass additional rules and enforce them. The way in which it seemed to be advisable in our own city to proceed was for the Mayor and Aldermen to pass an ordinance which embodied our rules in relation to plumbing as they stood at that time, and such further rules as were necessary were to be made by the Board of Health from time to time, and we never thought that there was any doubt but what all of the rules, whether embodied in the ordinance or any rules of the Board of Health, could be enforced.

If it is the wish of the Association, it seems to me to be well for whatever committee considers this matter further, to look at that matter more carefully and see if there is really a valid objection or doubt in regard to that clause of the Statute.

While I am on my feet I might as well say, as I made no remark in particular outside the report which was read, that the committee felt that this was a move in the right direction: that there were these imperfections in it: and that until to-day we did not know what the cause was. It appears that the gentleman on my left prepared a bill which was undoubtedly free from

all objections, and he is entitled to the glory of this step in the right direction. He is entitled to all the glory as a plumber, it appears further, because the bill was saddled with amendments which destroyed some of the best features that he had introduced into his draft.

Mr. DAVLIN. That is right.

Mr. SMITH. So I understood [laughter], and I am glad to get at the way in which that Statute was drafted. Now, I hardly think it would be advisable to repeal that Statute altogether. We have something to go upon now. The Statute is a move in the right direction, but if we can improve it, it seems to me that it is within the province, and in fact it is the duty, of this Association to make such suggestions as they deem proper, and bring those suggestions to the attention of the Legislature. [Applause.]

Mr. HATHAWAY, of New Bedford. Mr. President and Gentlemen of the Association: I believe it is the statute law of this Commonwealth that Boards of Health of towns of over 5,000 inhabitants must pass upon the regulations, or may,—I do not know as it is obligatory,—and it puts the responsibility of plumbing and house drainage just where it belongs,—on those Boards of Health. They are appointed presumably because they are fit to consider such questions and to solve them. With regard to all house drainage, or, for that matter, all the drainage of the city, the appointment of an inspector comes under the civil service rules, and I can say from my own experience that that does not necessarily result in having a poor inspector, because he must be appointed under civil service rules. You can get a good man even under civil service rules, and so far as the examination of plumbers is concerned, it seems to me that the responsibility for any plumbing work, providing the plan is approved by the Board of Health, coming up to the requirements imposed by any Board of Health,—that then the responsibility of any bad work, it seems to me, is on the plumbing firm which undertakes it,—on the master plumber, just where it belongs, and just where it will rest without any special legislation. I think we can safely leave to him the matter of employees, for I think if he finds he has a man in his employ who is not a practical plumber he will soon discharge him and replace him by one whom he considers practical; so it seems to me that this present bill might be torn up, and whether or not a new one should be substituted for it, is a question for us all to consider. [Applause.]

Mr. HICKS. Mr. President, some years ago I had occasion to prosecute a person for not furnishing a water-closet. He had in the back yard, attached to the dwelling, what was called a privy-vault, an excavation in the ground lined up with brick, and had an overflow connected with the drain. I did not call that a water-closet, but an ordinary privy-vault, and I made a complaint before the Board, and the lawyer whom we employed raised the point that it was a water-closet because in his house, which was situated about 25

or 30 feet distant, in the sink was a faucet, and he could attach a hose to that and squirt water into the vault, and that made a water-closet of it.

SECRETARY WOODWARD. Mr. President, Dr. Coffin has been obliged to leave to catch a train, but he asked me to present a question to the Association. The town of Arlington have passed some plumbing ordinances after a long struggle, and in attempting to enforce them have found that there is no penalty imposed for violating the law, and he wanted me to ask if there is a penalty under the general Statute or under this special Statute?

MR. NEWCOMB of Salem. Mr. Chairman, I always enjoy these meetings, but I have been particularly entertained this afternoon, in view of what we have heard from the master plumbers; but the point to which I specially wish to refer is this: Are we not organized for the sanitary welfare of our people in this Commonwealth, and is it our duty to hunt for loopholes in the wall or to protect the people? Another point: A gentleman over at my right said some people appeared to be a little callous. I think from what we see in the city of Salem it might be spelled c-a-r-e-l-e-s-s instead of c-a-l-l-o-u-s.

I agree with the gentleman who has spoken in regard to securing good men by an application of the civil service law. I believe the city of Salem to-day has as good a practical inspector of plumbing as any other city in this Commonwealth, and I think it can be proven. The expense is the evil in carrying out our plumbing regulations. A while ago there was a case of scarlet fever on a street in our city. The property belonged to a gentleman who might, perhaps, say he would sell it. I do not doubt it, if he could get his price for it, but the house was defective. That is to say, in going there we found bad odors; that led to an investigation, and we found that it was a question of bad drainage. Attention was called by our Board to the matter, and the gentleman requested to visit the place. He said he had only just fixed it up, but I said that he ought to adopt such and such things and do so and so. "Well," he said, "I have just put one into my own house." He had, but there was a tenant and his family in the other house whose welfare he did not seem to care for. I suppose you may say human nature is selfish, or charity begins at home; and although the present law may not be perfect, it is better than no law at all.

MR. HATHAWAY. If there is such a state of things in Salem or in Arlington, I should say that it is the duty of the Board of Health at once to remedy such a matter, and there is plenty of law to do it. There is no doubt but that such a man can be punished, and in Arlington I should suggest that proper plumbing laws be drawn up.

MR. NEWCOMB. Mr. Chairman, in reply to the gentleman I will say that

I will wager that there is no city or town in this Commonwealth that we can go to where we cannot find something there as bad as anything in the city of Salem.

Mr. HATHAWAY. I do not mean to say that everything is perfect in New Bedford. I have no doubt you can go around and make an investigation in the city of New Bedford and find many things that need to be remedied, but I do not think any further law is needed to enable the inspector to remedy the trouble, so far as New Bedford is concerned, at least.

Dr. DAVENPORT. Mr. Chairman, there are one or two points about this Statute which have not been mentioned to-day that I think are important. Among the members of the Board of Examiners it provides there shall be a member of the Board of Health, the Inspector of Buildings, if there be one, and a practical plumber; but in case there be not an Inspector of Buildings, then it provides that there shall be a practical plumber. If the gentlemen will read over the Act, they will see in one Section where the Board of Examiners are spoken of, that the Act does not provide clearly that in case there is not an Inspector of Buildings there shall certainly be three members of the Board of Examiners, two of them being practical plumbers. It was undoubtedly intended to be so, in the case of my own board, and the question was raised and strenuously upheld by one member that in case of there being no Inspector of Buildings, then the Board consisted of but two members. There are but two towns in the State which have an Inspector of Buildings.

Then comes the question, what shall be done in the case of a practical plumber? Shall we take some plumber who is engaged in the business in the town? If so, who is going to inspect his plumbing? which becomes a serious question. The Board of which I am chairman called on me to come down and consult with Capt. Damrell, Inspector of Buildings. Then I went to the Plumbers' Association, and then went to the Chairman of the Examiners of the Civil Service Board. It so happened that they all recommended one man, which man, after consulting with him, we employed on trial for a few months, he remaining a resident of Boston. We were pleased with him, and told him if he would come, we would engage him for the remainder of the year, and he came and settled with us in the town and obtained a residence. The next year we engaged him for the entire year. The result has been very satisfactory, but if we employed some plumber located in the town, we might have had difficulty. We had no Inspector of Buildings, so to meet the difficulty of having two plumbers on the board, and the difficulty of getting two plumbers who were agreeable and proper, the town appointed an Inspector of Buildings, which met the difficulty.

Dr. HARRIMAN. Mr. Chairman, I think there is no penalty imposed upon the city or town if they do not meet within six months of the passage

of this law and establish rules and regulations. I think the penalty in the law is fixed upon individual violations, the sum of fifty dollars. Now, in case a city or town will not adopt rules and regulations, what will be the position of the Board of Health under Article 6? It is by no means clear. I went to two lawyers for their opinions, and they did not agree, and I think Article 6 should be changed so we can know whether a Board of Health has power, in case a city or town does not adopt regulations, to proceed under this law with rules and regulations which they can enforce. The word "shall" there does not fix any penalty at all upon the cities or towns, therefore the Board of Health wants some protection, and the law should be changed so as to give them protection.

Mr. ABBOTT, of Andover. Mr. Chairman, I came here today, not to discuss, but to learn something, and the point that Dr. Davenport has brought up is one that I came to learn about. We have heard from the master plumbers and from gentlemen representing cities and large towns in regard to this law, but the bill as presented by the Legislature provides that towns over a certain number of inhabitants, and cities, shall appoint an Inspector of Plumbing. I represent the town of Andover, which has 7,000 inhabitants. We have not as yet done anything in regard to this matter. I brought it before our town solicitor and asked him in regard to the law. He said to me, "There is no penalty for the non-appointment of an inspector, and you had better wait until the next meeting of the board (that has been this meeting to-day) and see if you can learn something about it."

Dr. Davenport's idea in regard to the appointment of inspectors meets the conditions that we have in Andover. We have several tinsmiths who are so-called plumbers, that is, men who a few years ago sold stoves and tinware and who have attached to their signs, "Practical Plumbing," — "Tinplate Work, Stoves and Practical Plumbing." Now are we in towns of that sort to appoint one of those men, perhaps a man who could not do a piece of plumbing work? If there are but two men who advertise to do that kind of work in the town, we are obliged to employ a man and pay him a salary as inspector of plumbing, thereby using up some of the town's money.

I represent a town which, like a great many towns in the State of Massachusetts, has introduced water—from Haggett's Pond—and we have as pure water, I think, as there is in the State; but we must devise some way to get rid of that water. We have made a survey of the town with the idea of introducing sewers and also drainage; and being a member of the committee that has charge of the matter, I spent a large amount of time with the engineer in going over the town; and we would like also, if we get good sewers, to have the plumbing inspected; but whom shall we appoint as our inspector of plumbing?

When it comes to the town meeting, which will occur in March, as it has happened the last three years, there are certain individuals who live on the outskirts of the town whose great cry is, "Retrenchment in expenses." Our taxes are sixteen or seventeen dollars, and these people say, "We have got to cut down the expenses. We do not want any inspector of plumbing. The town has existed here for 250 years, and has had no diphtheria or typhoid fever. What is the use of it?"

Now, my idea is that the bill should be changed — I do not know how, as I came here to learn — in such a way that the town of Andover, and every town, can have an inspector of plumbing in some way, but how it shall be done, I do not know; whether we shall go to Lowell or Lawrence or Haverhill or Boston to get a man to come out there and inspect our plumbing is a question. There may be a good man in Andover, and I do not say there is not, but is he going to do work there and inspect the plumbing of the other two men to the detriment of their business, provided that should be his ideal, though I should hope it would not? That is one question that has come before us: whom shall we appoint, and whom shall we have on the examining board, and what shall be the examination requisite for a practical plumber? Those are questions which I hoped would be discussed here to-day. Of course in all your large cities you have men appointed to look after those things, but in towns of small size, particularly in the town of Andover, where we have Phillips Academy and Andover Academy in the centre of the town, bringing 900 students and teachers from all over the country, representing all classes and conditions of people, from the laboring man to the highest in the State,—those people and students we are bound to protect as well as we are able. They come from homes where the plumbing is perfect, so far as it can be, and they come to the town of Andover, go into boarding-houses, pay good round prices, and are they protected, so far as the sanitary measures of the town are concerned? We are willing to do all we can as a Board of Health, but so far as the bill is concerned in the town, it has been a question with us what we should do to follow the letter of the law, so far as we are able, and yet keep within the practical ideas of plumbing. That is a point that Dr. Davenport has brought out to some extent, and upon which I came here to-day especially to gain some knowledge. That is one point that does not seem to be covered by the bill. Of course, in cities there is no question about it, but in towns it is a question as to whom shall be appointed as that inspector of plumbing.

Mr. NORTON, of Beverly. Mr. Chairman, I would like to say in regard to the matter brought up by the gentleman from Natick,—I think he is gone now,—I am certain that in my town we took advantage of the law in that it provided no penalty, and appointed for our inspector of

plumbing, or continued our previous inspector of plumbing, the man who was inspector of buildings. He has done good work and seems to be a practical man, although not a practical plumber. Our death rate for 1893 was 15 1-2 a thousand, so that you can judge his inspection must have been pretty good.

The word "practical" has been used here a good deal, and a practical enforcement of the law in the smaller cities and towns, it seems to me, is rather difficult. The gentleman on my right speaks of having to come to Boston to get a man to act as inspector of plumbing because of their having only one or two plumbers there. Where there is only a small amount of inspecting work to be done, seems to me to present one of the greatest difficulties to be encountered under this present law.

Dr. DIKE, of Melrose. Mr. Chairman, I wanted to hear an answer given to Dr. Harriman's question regarding the penalty for a town's not complying with the provision of that Act. We have in Melrose a Board of Health that have compiled their by-laws, and we cannot get the town to accept them, therefore we are in a quandary, and I hoped to see that question settled today. If any one can give information on that point, I would like to hear it very much.

Dr. DAVENPORT. Mr. Chairman, in regard to a question raised about a town not being willing to pass regulations, I will say that in my town we had two heated town meetings, and they utterly refused to pass any regulations. The argument was that the town was 260 odd years old; they never had had any regulations, and they did not know that they wanted any regulations, and said they would not have any regulations. Well, that was summer before last, when the cholera scare was about. We thought ourselves that was a fit opportunity to act, because rumors of the cholera came to the Board of Health every now and then, otherwise there never would have been an opportunity to act; and we took advantage of the Statute which says that Boards of Health of towns shall make such regulations as they judge necessary for the public health and safety, and that whoever violates any such regulations shall forfeit a sum not exceeding one hundred dollars: and then we went on to say that, in the judgment of the Board of Health, the following regulations were necessary for the public health, and published a code of regulations. Some people were unwilling to obey it, and we had them brought before the court and the court upheld us. The burden of proof was upon the defence that these regulations were not necessary. The result is practically the same as if the town had done it.

Mr. EDWARD N. QUINN, of Waltham. Mr. Chairman, it seems to me that in discussing this plumbing law we have lost sight of the fact of the peculiar relations which exist between the preservation of the public health and the details of a law of this kind. As an Association we are formed

for the purpose of promoting the public health generally. The various details of the law do not concern us except in so much as they affect us. Now, rather than trust myself to a few casual remarks which I might make upon the occasion, I have jotted down a few notes upon a paper to which I trust you will listen.

\* Mr. E. N. QUINN. Mr. Chairman and Gentlemen of the Massachusetts Association of Boards of Health:—

After hearing the different opinions presented by the speakers of the afternoon, I almost hesitate to ask a further consideration of the subject, for so much has been said, that, to the casual listener, there would scarcely seem to be anything more that could be urged as bearing upon the questions in discussion. So much time has already been consumed and the hour is growing so late that I see you are anxious to have done and leave for home; yet I fain would beg your indulgence for the opportunity of offering a few additional suggestions on that section of the committee's report, relating to inspectors of plumbing, before proceeding to vote upon its recommendations.

I shall confine my remarks, as far as possible, to the following argument, *i. e.*, that it is not for the best interests of public health to restrict inspectors of plumbing to practical plumbers.

Naturally in the course of the argument, frequent allusion may be made to plumbers and their work, and I desire to be understood, not as objecting to them as workmen, but as protesting against the law which would restrict the employment of inspectors of plumbing to one particular class. For the plumbers, indeed, I have much respect. My duties lead me among them daily. I have laid out, supervised and examined their work, and inspected hundreds of their jobs. I have talked with them, learned their different methods, and exchanged views with them on the theory and practice of plumbing. So that what I say is not from partial or biased motives, but from an intimate knowledge covering years of experience and observation.

These remarks, therefore, are from an unprejudiced point of view and based mainly upon the results of my own experience and personal investigations into the relations existing between unsanitary conditions and the dangers to health lurking in defective plumbing.

For years I have had unusual opportunity for observing the natural consequences of cause and effect as relating to the general principles of sanita-

\* NOTE.—Mr. Edward N. Quinn is the Inspector of Plumbing in Waltham, Mass. The opportunity for practical experience in the inspection of plumbing work in that city for the past few years, has been unusual. Owing to the recent completion of the sewer system there, and the attitude of the Board of Health in forcing connections, the plumbing is being thoroughly overhauled and reconstructed. The regulations governing plumbing, while similar in many respects to those in force in other places, are a unique departure from the theory of so-called "back ventilation," advocated by so many authorities. The system has been highly spoken of by those who have examined it, and the plumbing work in Waltham is not surpassed by any other city or town in the State.

tion. Defects in drainage systems were carefully noted, and means for remedying them studied and applied. So I do not advance mere theoretical fancies or visionary thoughts, but speak from *practical* experience, notwithstanding what my "practical" friend on the left [Mr. Davlin] might say to the contrary. [Laughter.]

The scope of the subject is wide and deserving of most profound attention from every thinking mind; it is well calculated to awaken thought on matters which are of vital interest to all, and particularly to us as an association; for the question of home drainage is essentially one of health and life. Considered from a sanitary standpoint it is a most important phase of a subject which is occupying a great deal of attention in the present day among boards of health and others interested in sanitary reform.

The problem advanced by the philosopher centuries ago, of "pure air, pure water and pure soil" as necessary for the happiness of mankind, is still a mooted question. In the light of present knowledge it is of paramount importance to the health of the community that the good work which has been begun by our sanitary boards should be continued in a specific and systematic manner.

The importance of a close attention to even the minutest details of plumbing cannot be overestimated. We do not at all exaggerate the condition of things when we say the subject of sanitary house plumbing is a vital factor in securing immunity from many of the ills which our fathers taught us were the dispensation of a divine Providence.

This subject confronts us with the serious aspect of the prevention of disease and the preservation of health. The president of the National Association of Master Plumbers, which met in convention in Milwaukee last summer, incidentally said, that "the plumber held the life of the community in his hands." And this assertion has much truth in it.

While much has been written on the subject of infectious diseases, their cause, prevention, control and cure; and while earnest and unremitting attention has been bestowed upon this matter by boards of health, and much accomplished through their efforts, yet the importance of the application of sanitary principles to the plumbing side of the question has been recognized only in recent years. There are few scientific subjects of such importance about which so little is really generally known. The growth of house drainage as a system is comparatively new, and only very recently is the subject receiving the attention of popular interest. Very little, comparatively speaking, has yet been written on this phase of the subject, so that the source of information to the general public is somewhat limited. Yet the agitation of recent years is bringing the subject vividly before the public mind in a way to call for urgent consideration.

It might be a difficult matter to prove to your satisfaction that the evils

resulting from imperfect plumbing are as destructive of life as fire of buildings, yet the statement is no exaggeration. How many diseases are attributable to bad drainage it is impossible to determine. Read some of the reports of health officers and physicians throughout this country and Europe and you may then realize why so much importance is attached to the subject. It is a problem of such vital importance that it is commanding the attention of scientists throughout the world, and much has already been accomplished through their efforts.

This agitation has produced a revolution in plumbing practice all over the country, during the last dozen years or so. With the aid of advanced knowledge recent investigations have perfected the laws of sanitation and the conditions favorable to health so as to make them applicable to practical operation. And what is the consequence? Our boards of health are becoming thoroughly in touch with the spirit of advanced thought, and are adopting rules and regulations governing the practice of the work. And the results are apparent to all in the substitution of careful, scientific work for the slipshod and crude methods hitherto practised. George Preston Brown, one of the most prominent engineers of the West, says that in Chicago only as far back as 1881, "It would probably be the truth to say that not one house in a thousand has a perfect drainage and consequently is a healthy habitation;" and I have not much doubt that the same conditions existed here as many years ago.

Now I would propose a few pertinent questions: Who instigated these reforms? Who precipitated this changed condition of things? Was it the practical tradesman? Was it the plumber, either master or journeyman? Don't be impressed with any such delusion. To the professional man, the scientist and sanitary engineer, is due the credit of accomplishing this progress in matters relating to modern plumbing. This progress at first was retarded by the lack of knowledge shown by the workman in keeping pace with the times. He was so imprisoned by the prejudice of the past, that advance in real improvement was oftentimes slow.

There are few occupations in which the broad influence of a liberal education are more useful than to the plumber. In order to bring to his work an intelligent appreciation of the laws which underlie its principles, he should possess that grasp of theoretical subjects which would enable him to keep abreast with advanced knowledge. The rapid growth and development of sanitary science is opening up a field requiring special training and experience. It is only lately that the general principles of sanitation are being adapted to practical work. The so-called "practical" man who can discern in the complex conditions of theoretical and mechanical sanitation the solution of problems governing the vital principles of house drainage, is indeed rare; such a man is not the average "practical" plumber. Indeed, it

cannot be expected that the average workman should possess the breadth and scope of knowledge necessary to advanced work.

You can understand then, how, under the present conditions of modern life, the responsibility resting upon those in charge of the plumbing in the growing cities and towns of the country should be beyond that of the mere ability to accomplish a piece of mechanical work. Modern plumbing has become of too much importance to be entrusted to any but competent supervision. There is a training of a higher order than the most extended practical experience alone can supply, and that is the training which develops the powers of observation and judgment; a mental training, without which it is impossible to accurately interpret the conditions upon which first principles are based.

Now, Mr. Chairman and gentlemen, with reference to Sec. 5, Chap. 477, of the Acts of 1893, of the Massachusetts Legislature,\* which requires that inspectors of plumbing shall be "practical plumbers." I desire to call your attention to a further consideration of this matter. Aside from the fact that it is open to the objection that it restricts the privileges which law and constitutional rights accord to every man, to a certain class comprehended under the term "practical plumbers," let us consider if the public good is benefited thereby; that is the real end to be gained from all legislation; otherwise it is a grievous mistake added to the injustice of fostering class legislation. Aside from the construction which possibly the term "practical plumbers," in connection with this subject, might admit of, the qualifications necessary to an inspector of plumbing are more exacting than can be found, presumably, in the average practical workman.

The word "practical" is a much abused term, and has been used to cover a multitude of sins. There are a great many so-called "practical" men who may possess a special ability in the handling of tools, but who, unfortunately, can do little with their heads. The man who can accomplish a skilful plumbing job is not necessarily the one who can best supervise the construction of the work. It must be acknowledged that an essential requirement in securing all of the advantages of good plumbing requires constant, careful and intelligent supervision as absolutely necessary for the best interests of health. It is not enough that a man should be merely a practical workman; he should be thoroughly conversant with all the principles underlying his work.

\*NOTE.—Sec. 5, Chap. 477, ACTS OF 1893.

"The board of health or inspector of buildings of each city and town mentioned in section three of this act, shall, within three months from the passage of this act, appoint one or more inspectors of plumbing, who shall be practical plumbers, and who shall hold office until removed by said board or inspector for cause which must be shown. The compensation of such inspectors shall be determined by the board or inspector appointing them, and be paid from the treasury of their respective cities or towns. Said inspectors shall inspect all plumbing work for which permits are hereafter granted within their respective jurisdictions, in process of construction, alteration or repair; and shall report to said board or inspector all violations of any law, ordinance or by-law relating to plumbing work, and also perform such other appropriate duties as may be required."

As I have before intimated, the rapid developments of modern sanitary science are the results of the labor of scientists and not of "practical" plumbers.

The work done to-day is far in advance of that of a dozen or so years ago. The methods of that time show frightful examples of unsanitary devices and curiously outrageous work. The plumber, not realizing the vital importance of his work, might have continued in the old ruts of long-established custom to this day, if his errors were not rectified by others. With all due respect to the plumber, in many instances he has been opposed to advance in his line of work. He has made very little effort to correct abuses or live up to the higher ideals and precepts of sanitary reform. How many of our "practical" plumbers, do you suppose, comprehend the intimate relations which exist between defective plumbing and the prevalence of preventable disease? How many of them understand the principle of the generation of "sewer gas" and its destructive influence upon the hæmoglobin of the red blood corpuscles? How many of them even feel themselves competent to pass judgment upon all the details of sanitary arrangements which affect their work?

Even in the labor of good practical workmen, generally produced by anxiety to do superior work, defects of a very serious character often occur, showing a lack of understanding in the local conditions which should influence the work, and consequently of the main principles upon which the whole system of sanitation is founded. There is a lack of ability for specific application. "A little knowledge is a dangerous thing," is often forcibly illustrated in such cases.

It might be interesting here to relate my own experience in enumerating all the defects of a grave character I have seen in drainage systems, the flagrant cases of gross stupidity I have found, the jobs of reckless botching I have taken out, the scandalous carelessness and criminal dishonesty, the indifference and ignorance on the part of the workmen apparent on all sides; but it would not be possible, in the course of one of our sittings, to commence to suggest even all the dangers which menace health that I have found in defective drainage. What I say are facts patent to all who have had occasion to inquire into the subject and investigate for themselves.

There is a gentleman here present who can affirm to the criminally outrageous piece of work I took out of his own dwelling almost under the protest of the owner. His bathroom was actually converted into a retort to collect, preserve and distribute all the foul gases generated in a large cess-pool containing the collections of many years' sewerage from a large household. But this work was done originally by a first-class "practical" plumber.

I could cite hundreds of similar cases if time would permit. And then the plumber has the assurance to tell you that the inspection of plumbing work

should be entrusted to no other hands than his ! Only a plumber is competent to inspect the work of plumbers ! I refrain from giving expression to my own feelings in explaining my meaning. What does S. Stephen Hellyer, of England, say about "practical plumbers," himself a practical man, I believe, of extended experience, and a sanitarian of no mean order. Before a parliamentary committee in London, a few years ago, he gave much sensational and damaging testimony concerning "practical plumbers." His exact words I do not recall at this moment, but think they are quoted in one of the reports of the then National Board of Health of this country. He accuses the plumbers, in no gentle language, of being the cause of much sickness and death of the United Kingdom by their hellish work !

Do any of you gentlemen here present question these assertions ? Possibly you have had your own experience in past years. If you doubt me call in a plumber to your own house and learn for yourself. Only suggest to him that you need his services and he makes your emergency his harvest. [Laughter.] Suggest to him the need of a piece of pipe here, a new trap or fixture there, and he is perfectly willing to follow your suggestions : call him in to-morrow and tell him you are not satisfied with the way in which things work and he is perfectly willing to take them all out again for you, "for a consideration," of course. [Laughter.] Is this not true ? Here, gentlemen, is the situation in a nutshell. The gentleman from Somerville [Mr. Davlin] well understands it ; he has been all through it himself, doubtless, "for a consideration." [Laughter.] If that "consideration" were not involved they would not now trouble themselves about the character of work or the qualifications of the inspector. They would not be so eager to keep the work within their own control. They fear that "Othello's occupation" may be interfered with if others "get onto them." [Laughter.]

Now ask any plumber you happen to know if his profits for the last ten years have been at all commensurate with those of the previous decade. They have not. And why ? Because the requirements of the rules governing plumbing, enforced by our local sanitary boards, have reduced the possibility of undue gain by requiring the plumber to conform to the laws ; and consequently his profits have decreased accordingly. The various make-shifts resorted to at the time by which the public was humbugged cannot now be successfully practised. And every intelligent and honest person who has given the subject any attention knows this. I know of firms which have been forced out of the business since the advent of rigid supervision of plumbing work.

But I am digressing somewhat. In what then, should an inspector of plumbing's qualifications consist ? They should consist, first — [Here the chairman interrupted to read a dispatch from an absent member in Florida : "*Corbett knocked Mitchell out in three rounds !*" (continued laughter and

applause)] — an inspector's qualifications should consist, first, in that fundamental education necessary to success in any line of work; secondly, in a thorough grounding in the physical laws upon which the whole system of sanitary science is based. He should possess, in addition to any practical knowledge he may have, a theoretical knowledge of the elements which enter to make up this system, and I need not tell you that few of the average workmen possess this experience.

But it may be urged that experience depends upon practical skill. This, in a measure, is true. I do not underrate the value of experience or of knowledge gained in practical operations. It would be well if much practical knowledge were possessed, the more the better. That is good as far as it goes; experience is necessary — but not necessarily that experience which would only require a man to be able to "wipe a joint" or bend a piece of pipe successfully. Experience of a wider and larger and more comprehensive nature should be possessed; the experience resulting from a knowledge of the relations existing between the physical laws and the complex conditions which frequently arise in every-day plumbing work. Experience in the practical application of such knowledge is of far more value to the inspector than the possession of the mere ability of the average workman. It is of more importance to understand the relation between certain diseases and their preventable causes; for it is only reasonable to suppose that the possession of such knowledge on the part of the inspector would very soon show its influence in the character of the practical work done under him.

It is a fact that the imperfectly educated man possesses in general but crude powers of observation, and especially of the natural characteristics of the physical laws. By this use of the word "educated" I do not necessarily mean the knowledge gained in schools or academies of learning, but the ability to draw out or discern the natural consequences of cause and effect, the power to control and utilize all the factors of the physical elements which lend themselves to the correct solution of problems which are continually arising in practical work.

This, indeed, might be the purpose of all education, but it is particularly true of the education absolutely necessary to engage in any department of sanitary work. Such an education can be obtained only by thorough mental training. Again, it is urged that a "practical" man is best qualified to inspect the work of practical workmen, possessing, as he does, their stock in trade and knowing the old-time tricks of the craft. This is not altogether true; even then it is at times difficult to prevent intentional frauds on the part of an unscrupulous workman. But, granting this, is nothing more necessary than the mere casual inspection of manual labor? This is only of secondary importance, for any practical workman could accomplish this much.

Upon what does the plumbing system of a place depend? In a great measure upon the ability of the local inspector, rather than upon any rules governing it. Examine the general system of plumbing in any of our cities and towns and you can reasonably guess at the qualifications of the inspector. He it is who generally has the entire control of the work. Ofttimes the making of the rules and regulations, even, as well as the interpretation and adaptation of them to local conditions, depends upon him. The department in whose employ he works does not pretend to dictate to him, owing, indeed, often to its own lack of knowledge in the premises. And it cannot be expected that the ordinary man, unless he possesses special training — which is seldom the case — should be familiar with the difficult problems of house drainage which frequently arise. These difficulties are left to the inspector for settlement.

The *personnel* of our Boards of Health in the cities and towns of the State, in whose department the work is generally left, is ordinarily made up of a physician and a few laymen who do not presume to comprehend this part of the work; so that the whole supervision of the work falls to the inspector. How many of you gentlemen here present, members of the different Boards of Health throughout the State, perfectly understand the sanitary conditions of your own homes, even in regard to the plumbing, or are certain that the existing conditions are free from dangers to health? Yet the plumber tells you that he, and he only, should have charge of this work! Much responsibility, therefore, rests upon the inspector; for, in a measure, he "holds the health of the community in his hands." The time is coming when such an officer will be required to possess such qualifications. He may be a "practical plumber," indeed, but not altogether in the sense of the average practical man of trade. It will be seen, therefore, that the office of inspector of plumbing is a highly important one and should be filled by a responsible official.

Again, gentlemen, in the interpretation of the term "practical plumber," as used in the Statute in the section referred to, much difference of opinion has been expressed. In my own city, the solicitor's opinion, which you have heard read by Judge Smith, has rendered the term to mean a plumber who can do any ordinary job in plumbing practice; and further, under the meaning of the Statute, that the inspector of plumbing should be a person possessing such qualification. But I cannot understand that the term can be defined from a legal point of view. In this country there is no system of apprenticeship established by law by which the meaning of the term could be defined; so that it becomes a matter of *opinion* and not of *law* as to its explanation.

Since this agitation over the matter, many of the plumbers in Waltham are in a dilemma to know just how they stand in the matter. Several of them can do good plumbing work, but it is a question whether they would come under the generic term of "plumber" as thus defined. [Laughter.]

In my researches in this matter — the exact meaning of the term “practical,” I mean—I have consulted many sources of opinion, and I have yet to obtain any definite information. From the cursory views of the journeyman to the dogmatic opinion of the master plumber; from the judgment of the sanitary engineer and man of science to the opinion of the mechanic,—I have wavered; and the only satisfaction I have found, outside of my own experience, was in Blackstone, when I learned that the most rational method of interpreting the will of the law in a given case where there is a question of doubt, is by exploring the intentions which framed the law.

Now let us enquire into the conditions which made plumbing laws necessary. In a nutshell, *i. e.*, the slipshod and crooked methods of doing plumbing work which have prevailed for many years and for which the plumbers themselves are responsible. The natural result of this bad workmanship materialized into a public realization of the danger, and legislation became absolutely necessary to protect humanity from a great peril threatening the foundation of its health. The law, gentlemen, protects the plumbers against themselves as well as the community against them. [Laughter.]

The subject of sanitary science being yet in its infancy, requires the progressive and not the retarding element to become necessary to man's welfare. So that, as I am informed, the New York Court of Appeals has decided, that as all laws are made for the benefit and not for the injury of the community, we must prefer the scientist to the practical plumber, so-called. This decision further adds—I depend upon a friend for the quotation—that, “a practical plumber is classified under the head of unskilled labor, but occasionally he may be classified as skilled labor. [Laughter.]

Now what would be your interpretation under the conditions? I know of no better opinion than that of J. Pickering Putnam, one of the most prominent sanitary engineers of New England, and an acknowledged expert in sanitary matters. In response to my letter of enquiry he replies: “I hold the expression ‘practical plumber,’ in this connection of a plumbing inspector, as one who has a thorough knowledge of the chemical and physical laws underlying scientific plumbing. Such a man is the only one who is fitted to direct the workman in the execution of practical plumbing. A scientific knowledge of hydraulics, pneumatics and chemical physics, and a thorough knowledge of the general principles underlying plumbing work is infinitely more important to the inspector of plumbing than any special manual dexterity in the handling of plumbers’ tools.”

I take the ground that the public good demands the best possible service in conserving its interests in so vital a matter as that which re-

lates to the preservation of the public health, and that the control of plumbing work should be in the hands of those where it properly belongs, those who are capable of investigation upon a scientific basis. Here is the only proper course to be pursued in dealing with the difficulty.

William Paul Gerard, consulting engineer for New York city, another high authority in this country, says in connection with the interpretation of this term: "It is not necessary that an inspector of plumbing should be a 'practical plumber,' understanding the term to mean a person who has served an apprenticeship in or who has carried on the trade of plumbing."

George Preston Brown, before quoted, says: "The supervision of the construction of house drainage should be entrusted to a sanitary engineer, no less than the construction of a house itself to an architect."

All these men, and many others that might be mentioned, are well-known experts in their profession, and to them are due many of the improvements in modern sanitary plumbing in this country.

I will not take up your time further, gentlemen, in discussing this question. What I have said is simply the result of honest conviction and based upon actual experience in this line of work. It would be impossible to cover the whole subject or to present all its salient features without going further into detail than your time would permit. There are so many things to be said that in these brief remarks it is not possible to consider all the features which might require attention.

In these cursory observations I have endeavored to offer a few suggestions for your consideration. They do but scant justice, however, to a subject of so much importance. If they have served to awaken thought and to create effectual recognition in this matter, they have accomplished their object.

To close, my point is this: that the interests of public health demand the very best talent that modern science can supply in keeping pace with the natural growth of the times. Do not place any restraint then, I pray you, upon this progress by recognizing any but the best methods. Cause the Statute to be changed so that Boards of Health may have some voice in the selection of their inspectors; give them the power to chose them whence they will, under the limitation, however, of suitable qualification only. Raise the standard of qualification, if necessary, but insist upon ability in the inspector. Change the Statute, therefore, by throwing open the position to all competitors, to any others as well as to the practical plumber. Make his chances of success depend upon his ability to pass the necessary examination and not merely upon his skill as a manual workman. [Applause.]

Dr. CHAS. H. MORROW. Mr. Chairman, there is one point in this law

which nobody seems to have taken much note of, and that is, after you have your men all examined, who has the appointing power? I think the law says, although I have not the law here, that it shall be either the board of health or the inspector of buildings. This has already led to considerable difficulty in some places. I know a journeyman plumber who came to me and desired some points in regard to this plumbing law, and I told him I did not know anything about it, but I should advise him to go into the examination in another city; and he went into the examination and got the highest per cent., and he thought certainly he was to have the appointment, but he found out that a difficulty arose as to who had the appointing power, whether the board of health or the inspector of buildings, and that naturally has continued until the present time, and the man has not the position. I think that difficulty can be remedied very easily, and I think it should be remedied.

DR. DAVENPORT. Mr. Chairman, there is another point which has arisen. My board had an examination of several men who had applied for the position of master plumber. We had to determine in our own minds what the examination should be. We had twenty questions written on topics pertaining to plumbing, including plans and methods of plumbing, some of which were correctly constructed and some were not. We requested the candidates to examine, criticise and point out the errors where they existed, and it was quite curious to see how they did. We also required that they should submit a piece of actual plumbing work which should be done in the presence of our inspector, and which was to be satisfactory, before the candidate received his license. No one person who applied for the master plumbership reached the standard upon which we had determined, and the question was, what shall we do about it? My proposition was, that not having reached the standard which we had set for the master plumbers, but having attained to that which we had set for journeymen plumbers, although the man had applied for the master plumbership, we determined we would grant only a journeyman's license. That is a practical question which I and others have had occasion to consider, and I should like to have the advantage of other opinions about it.

HON. E. IRVING SMITH. Mr. Chairman, there have been several questions asked which I feel, for one, hardly competent to answer, and yet I am willing to furnish what light I can upon them. It was asked, in the first place, what penalties were attached to this plumbing law. So far as the boards of health themselves are concerned, and so far as the city officials generally are concerned who are affected by that law, there is no penalty whatever. It is left to them simply to enforce that law as a matter of duty, and I think it is an unusual thing, except in certain cases where it is absolutely necessary that a law should be enforced, that a penalty should be

attached for a mere failure of duty. It is a malfeasance in office which would be punished, if at all, by removal by the proper authorities; either by the people, if they elect, or by the proper authorities if appointed by the authority of the city; therefore if a board of health neglects to appoint an inspector of plumbing, or if a city neglects to make rules and laws, they are simply neglecting their duty, and no penalty is provided for any such breach. There are penalties, however, in this Statute, and those penalties bear directly upon the plumbers. The last clause but one provides that any plumber who violates any of the provisions of the Act shall be subject to a fine not exceeding fifty dollars, and there is a direct and comprehensive remedy against any plumber who does anything wrong in view of this law.

The next question was in reference to the power of the board of health to make rules and regulations. The Statutes provide that a city or town shall by ordinance or by-law make such rules and regulations, and there is no doubt but what such rules and regulations may be enforced. But the question whether the board of health can do anything in addition is the one that we have had distinctly presented to us. That question, I would suggest, might be answered in this way: that the Statute there provides that plumbing work shall be done subject to the approval of the board of health. That certainly, it seems to me, gives the board of health an opportunity to make such additional rules as they see fit, rules additional to any ordinance that may be passed by the city. Apart from that and resting on a different ground, we fall back upon the general proposition that boards of health have jurisdiction in sanitary matters, and may make such rules as are proper in that connection. I admit that there does now seem to me to be some doubt as to how far the board of health can go, and I did not appreciate that doubt when your report was drafted. That certainly ought to be considered.

The next question was asked by a gentleman whether he could go outside of his own town to appoint an inspector of plumbing. That matter is controlled largely by the civil service rules. An inspector of plumbing must be appointed subject to those rules, and I understand that the candidate must come from the town or city in which he is to be appointed. The civil service examiners will examine only such an applicant, but if no applicant who appears before the civil service examiners passes a satisfactory examination and who is suitable for the place, then they send a certificate to the local appointing power which authorizes them to appoint anybody, subject to a non-competitive examination, and that is the way I understand that matter stands.

Then, in conclusion, I would say that it seems to me that the Association ought to express some opinion as to the main points of the controversy that we have before us. The principal question is: Do we want this provision in the Statute at all requiring the inspector of plumbing to be a practi-

cal plumber? That is a plain and distinct issue. There are other connections in the Statute in which the words "practical plumber" are used. For instance, one of the members of the board of examiners must be a practical plumber. With that, I understand, there is no quarrel, except so far as there is some doubt about what the words "practical plumber" mean, but the real question is: Must an inspector of plumbing be a practical plumber? And that is the thing upon which the Association is bound by the report of the committee to express some opinion.

There were other questions, perhaps of less importance, but still of importance. The most prominent was whether there is any necessity of a central authority such as the State Board of Health or the State Board of Civil Service Examiners, who should have some control or some advisory power over local boards of examiners, who are to examine applicants for licenses for plumbing, and the suggestions that the committee made in that respect were what they believed to be wise, so far as they had considered the subject. I do not know as it is usual in a meeting like this to ask for a direct expression of opinion, but I certainly would like for myself to get such an expression; whether this Association approves, in the first place, of striking out from the Statute the requirement that the inspector of plumbing must be a practical plumber; and, in the next place, whether it is advisable that there should be some central authority that could maintain a uniform standard of excellence throughout the State with reference to plumbers who apply for licenses.

THE CHAIRMAN. Is the Association now prepared to come to a vote upon the matters which Judge Smith suggests? If so, I would put the first motion, and then upon the question as to the (perhaps Judge Smith can state it more accurately than I can) necessity of a practical plumber serving as inspector. I would ask Judge Smith to put that in such a form that we can more clearly vote upon its approval.

HON. E. IRVING SMITH. I will put it in this form: I move that it is the sense of this Association that the words "practical plumber" should be stricken out of the Statutes so far as they relate to the qualifications of the inspector of plumbing to be appointed under the Statute. [The motion was seconded.]

MR. MCCARTNEY. Mr. Chairman, I would move as an amendment that the words "practical plumber" be stricken out, and the following words be inserted in their stead: "The person appointed shall pass a civil service examination designed to test his skill in practical plumbing, house drainage and plumbing of ventilation."

MR. SMITH. Mr. Chairman, the committee did make a recommendation in regard to the kind of examination this inspector should be required to pass, but I was afraid we should get into a discussion on that matter that

would involve the main point, and I intended to present that question later, if it was the sense of the Association that the words "practical plumber" are not advisable.

The CHAIRMAN. Do you care to press your amendment now or later?

Mr. MCCARTNEY. Later. I won't press it now. [The motion of Judge Smith was then adopted.]

Mr. SMITH. Mr. Chairman, I now move that it is the sense of the Association that it be provided in the Statute relating to plumbing that any person before appointment as inspector of plumbing shall pass a civil service examination designed to test his skill and technical knowledge in plumbing work, as related to house drainage, plumbing and ventilation. I have omitted from that the word "practical" in order to see whether anybody thinks it should be necessary.

Mr. QUINN. Mr. Chairman, I rise to second Judge Smith's motion for this reason: Mr. McCartney, my friend from Worcester, is anxious to have the word "practical" put in. He wants to exclude everybody but plumbers. Now, let him be charitable and give the others a chance. We do not care to exclude the plumbers. We desire to give them a chance, but let any other person have a chance as well as the plumbers. I do not think it necessary that an inspector of plumbing should be able to "wipe a joint." That ability could be acquired by a week's practice. It is difficult to say just what a practical plumber is, because when the trouble came up about practical plumbers I purchased a kit of tools and worked night and day until I could wipe a joint. I do not know whether I am a practical plumber or not, but I hope Judge Smith's motion will be carried. Include practical plumbers, but do not exclude others.

Dr. MORROW. Mr. Chairman, I am in favor of the words "practical plumber." If a man wants to be a practical plumber, he can become such in a year or so.

Mr. MCCARTNEY. Mr. Chairman, I insist upon the words "practical plumbing" because I do not think they will exempt any man who chooses to stand an examination. The Civil Service Commission will determine what qualifications are necessary, therefore I move as an amendment to the motion that the words "practical plumbing" be inserted instead of "plumbing;" that is, that the motion shall read in its entirety, "Any person before appointment as inspector of plumbing shall pass a civil service examination designed to test his skill in practical plumbing, sanitary drainage and plumbing ventilation."

The amendment was seconded by Dr. Morrow.

Mr. HICKS. Mr. Chairman. I hope that will pass, because the words "practical plumber" are hard to define. The Courts have said many times when the law does not define a term, "We will turn to the leading diction-

aries to see what the meaning of the word is;" and many of our friends here have been to the dictionary, and they do not yet agree as to what the meaning of the words is. We are getting into difficulty, and there is no way out of it until the law defines the term, and if the motion prevails as offered by Judge Smith, I think it won't shut out a practical plumber, and it won't shut out any competent person. I hope that the motion will prevail.

Mr. NORTON. The gentlemen who preceded me said just what I wanted to say. I believe that the word "practical" should be left out. I believe that ability to wipe a joint should not be a qualification for an inspector of plumbing, and it seems to me if that amendment prevails the question will be brought right round where the law now is.

Mr. CHARLES E. DAVIS, Jr. Mr. Chairman, Dr. Farnham of Cambridge was called away, and left in my hands this definition of the words "practical plumber," which may be interesting at this point. This information has been acquired from the Century Dictionary:

*"Practical.* Educated by practice or experience.

*"Plumber.* One who works in lead; especially one who fits lead pipes and other apparatus for the conveyance of gas and water, covers the roofs of buildings with sheets of lead, etc.

*"Plumbing.* The art of working and casting in lead (also, by extension in other metals put to similar uses), and applying it to various purposes connected with buildings, as in roofs, windows, pipes, etc.

*"Practical plumber.* One educated by practice in the fitting of lead and other metal pipes and other apparatus for the conveyance of gas, water, etc."

Dr. DAVENPORT. Mr. Chairman, I would suggest that the difficulty might be removed in this way: that instead of the words "practical plumber," it should be a person who had passed an examination before the Civil Service Commission as one competent, etc., whatever the rest of the phrase is. Of course, that would leave it entirely in the hands of the Civil Service Commission to satisfy themselves.

Dr. THOMAS, of Quincy. It strikes me, Mr. Chairman, that what the gentleman has said is just the thing, because as the word "practical" has been put here to-day, we throw out men who are competent. I know one man, personally, who does not follow the trade as a plumber at present, and has not for years, but there is nothing that I know of in the plumbing line but what he can do, for I know from some jobs that he has done in our place. He is a practical man, what we might call an all-round man, a first-class machinist, and at the present time is following the trade of a machinist. He is a first-class carpenter as well. He is somewhat of a chemist. I have had long talks with him on such things as the action of air or gas, in the past few years; so it seems to me that this word "practical" will perhaps throw out valuable men for these positions.

Mr. NEWHALL, of Salem. I hope the word "practical" will be stricken out of the Statute, if possible. We have in Salem a man who made a very good inspector of plumbing. He is a sanitary engineer, and under his direction has been done some of the best plumbing in Salem. If this word "practical" is retained, it might exclude him, and there is not a man in Salem more fitted for that position than he.

Mr. QUINN. Mr. Chairman, just one word more. I trust this amendment will not prevail. As the last gentleman said, it will shut out such men as Mr. Bowditch, Colonel Waring of Newport, —— & Brown of Washington, Philbrick of Boston and Brown of New York, and dozens of others you might mention, men who instituted this reform in plumbing and ventilation; you shut out all these men who were the prime movers in this matter. Give them a chance. You do not shut out practical plumbers by omitting the word "practical." They have the same opportunity as the rest of us.

The amendment offered by Mr. McCartney was then voted upon and lost, and the motion as offered by Mr. Smith was adopted.

Mr. SMITH. Mr. Chairman, I offer a motion that it is the sense of this Association that the State Board of Health have the power to advise local boards of examiners of plumbers with reference to examinations, and that local boards be required to submit their examination papers to the State Board of Health for approval before they are actually used.

The CHAIRMAN. I wish to ask the privilege of this Association of saying a few words from this place. I am apparently the only member of the State Board of Health present. I think that provision is entirely out of place, for the reason that the somewhat infrequent meetings of the State Board would make it difficult to get the timely expressions of opinion that would be necessary. The Civil Service Board is a salaried board, and they can employ and do employ an expert to give an opinion. I think the State Board of Health would be an exceedingly improper board to consider the matter, but I think the Civil Service Commission would be the proper board to consider it.

Mr. SMITH. Mr. Chairman, I rather expected that protest from the State Board, and in view of that I will withdraw the motion to a certain extent. I suggest that the words "Civil Service Commission" be used instead of "State Board of Health," so that the motion will be that local boards of examiners of plumbers (this has nothing to do with plumbing inspectors) — that local boards of examiners of plumbers shall be required to submit their examination papers for approval to the State Civil Service Commission before the papers are actually used in the examination, and that the State Civil Service Commission shall have advisory powers over local examining boards. The object of this motion is to get some uniformity in the standard of excellence required in the examination of plumb-

ers, and I repeat that it has nothing to do with the inspectors of plumbing, but it has to do with the plumbers themselves who apply for examination.

Dr. Davenport suggested that this procedure might involve a difficulty, as it might require a frequent preparation of papers to be submitted for approval, and if there should be one authorized set of papers, they could be reported to new candidates.

Another gentleman also thought there were difficulties in the way of accomplishing this, and thought it entirely likely that some board of examiners, even if they had examination papers, might substitute some other form of examination. He thought some uniform system was desirable, and suggested that a general convention of the boards of examiners of the State might be held to adopt some such system, but he did not think the result could be accomplished in the way proposed.

Mr. McCARTNEY. Mr. Chairman, this matter of enforcing the law I think is all-important; and, I think, as has been suggested, that there should be a central authority for the proper enforcement of the same. That we have not secured by our new law, and I think the law should impose upon the State Board of Health the duty of carrying out this law, and then we shall have attained a step in the right direction. Give them power to employ whatever service is necessary for the just carrying out and enforcement of the law. I think that the examination might be left in their hands too, giving them authority to employ whatever service is necessary in order to carry out this part of the law. Let them employ a man to make the standard of examination, and, if necessary, to go about from place to place to supervise the examination. That would be my idea of an amendment to the law. I think it will be a step in the right direction if we do get an amendment such as that, which would avoid all these little difficulties which are constantly arising as to the interpretation of the law. It would place in their hands the responsibility of interpreting the law, and if we had any complaint to make, we would know where to make it. Therefore I think that an amendment such as I expressed would be a very suitable thing indeed.

The CHAIRMAN. Will you put your amendment in writing so that we can act upon it?

Mr. McCARTNEY. Well, I would prefer to leave it open to the members for discussion first. I rather make it as a suggestion, in the first place.

Dr. MORROW. Mr. Chairman, this system which has just been suggested is the same as that carried on under the Civil Service Commission. They have a chief examiner, Mr. Sherwin, and he practically oversees the matter, sees that the work is carried on by the local board. If this idea, which Mr. McCartney suggests, were carried out, it would be on the same plan as the other civil service examinations, with the exception that Mr. Sherwin not being a plumber, there would have to be, perhaps, a man ap-

pointed who could travel over the State and supervise the examinations and see that the qualifications required were uniform.

A gentleman moved that the matter be laid over to the next meeting.

Mr. SMITH. As the matter has not received that attention and discussion which the importance of the subject demands, I think that matter should be tabled, and I move that that motion be tabled,—simply this motion.

The CHAIRMAN. Will you withdraw it or simply move that it be tabled?

Mr. SMITH. I will withdraw it.

Dr. THOMAS. Mr. Chairman, it seems to me this should be formulated in some way to come before the Legislature before February 1st. I think the committee which has made this report is perfectly competent to finish this matter and get it before the legislative committee. I move that this committee that has reported on this matter have the whole charge of presenting to the proper legislative committee what this Association desires, as has been represented in the different suggestions.

The motion was seconded.

The CHAIRMAN. It is moved that this matter be recommitted to the committee reporting it, with full power to present their views on the subject to the Legislature, and ask legislation in accordance therewith, with the understanding, of course, that the committee will act under the instructions already expressed in the first two votes.

Mr. SMITH. "There is this difficulty, Mr. Chairman, that if any legislation is to be asked for in regard to this matter, the subject should be covered as well as it can be at the time any bill or amendment is presented.

The CHAIRMAN. Certainly.

Mr. SMITH. And that is the difficulty in regard to this case. Now, we are pretty clear on all the main issues except this one that has last come up for discussion. It has not received the attention that it should have received from the Association because of the press of other matters. Now, it seems to me that it is more a question of practicability than anything else. We are looking for some practical way to accomplish what, I believe, we all think is a good object, and I therefore would suggest that this committee, if it finds any practical suggestion which it can make to the Legislature upon this point, should do so.

The CHAIRMAN. That I understood was the purport of Dr. Thomas' motion.

Mr. SMITH. On this other point, as to the advisability of there being some central power, we have not had much discussion, so that if the motion means that the committee can go ahead and ask for legislation in that respect before the time expires to introduce new business into the Legislature, I think the motion ought to be carried.

The CHAIRMAN. I understood that to be Dr. Thomas' motion.

The motion was then adopted. It was also voted that Dr. Davenport and Mr. Hicks be added to the committee.

The CHAIRMAN. There is one question that Dr. Norton has asked me to submit to the Association; possibly it can be answered at once by some gentleman: who shall enforce the law in relation to vaccination of school children,—the school board or the board of health? If there is any representative of a board of health which has had any actual experience in that matter, I would like to hear from him.

Mr. HICKS. I think the board of health has nothing to do with that. It is a matter which in Boston is in the hands of the School Board.

Mr. SMITH. May I correct an apparent error in a statement of mine?

The CHAIRMAN. Certainly.

Mr. SMITH. In answering the question as to whether an inspector of plumbing must be appointed from the city which appoints him, I had assumed that the question related to cities only; but in the case of towns I understand that the civil service law does not apply, that the requirement that an appointee must be a resident of the city in which he is appointed does not apply to such a case at all, and therefore it seems to me that the appointee might be from any quarter. I merely wanted to say that so that I should not be misunderstood.

The meeting then adjourned.

# MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH.

*Organized 1890.*

[ This Association as a body is not responsible for statements or opinions of any of its members. ]

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## QUARTERLY MEETING.

THE Massachusetts Association of Boards of Health held its regular meeting at the Parker House, Boston, on the afternoon of Thursday, April 26, 1894. The meeting was called to order by the President, Dr. Henry P. Walcott, who stated that the reading of the records of the last meeting would have to be dispensed with, owing to the absence of the Secretary.

On motion of Dr. S. H. Durgin, Dr. Farnham, of Cambridge, was appointed Secretary *pro tem*.

THE PRESIDENT. The Executive Committee have to report to you the following names for membership in the Association: Dr. W. P. Bowers, of Clinton; Dr. J. A. Douglass, Dr. J. A. Fitz-Hugh and Mr. H. Cooper, of Amesbury; Dr. E. L. Warren, of Melrose; Mr. Edmund M. Parker and Charles Harris, of Cambridge.

The above named gentlemen were elected members of the Association.

THE PRESIDENT. The Committee also recommend to the Association for action at this time, the following resolution:

"Whereas, an amendment is now before the General Court of Massachusetts exempting all children from vaccination upon presentation of a certificate of any reputable physician that they are not in condition to submit to it, therefore—

"Be it resolved, that the Massachusetts Association of Boards of Health considers that this amendment will largely nullify the objects of the bill, and will obstruct the efforts of boards of health in enforcing vaccination, and that it believes the amendment should not pass."

In explanation of that, it should be said, as many of you probably know, that an amendment to the vaccination law has been introduced, by which any person can present in behalf of a child, a statement from any physician

whatever, stating that this child is not a proper subject for vaccination, and under that certificate the child at once enters the school, notwithstanding the present law that makes vaccination necessary. The Executive Committee feel that the influence of this Association should be thrown into the scale, if possible, to prevent this, and they therefore recommend this Association to adopt the resolution which I have read to you. Is there anything to be said about it?

Dr. DURGIN. This resolution is offered, I presume, for the reason that this subject is being discussed in the State Senate, and may be acted upon this afternoon, having been acted upon favorably in the House, and if the resolution meets the views of the Association, that expression ought to reach the Senate this afternoon. It seems to me that as a representative body we ought to speak upon this question, and it seems to me also that the Legislature would be glad to hear from this body upon this important subject, for the amendment undoubtedly breaks the whole force of the present excellent law on vaccination. I therefore move that this resolution be adopted.

The motion was seconded, and the resolution was adopted.

Dr. DURGIN. I would also move that a copy of this resolution be sent immediately to the chairman of the Committee on Public Health on the part of the Senate.

The motion was seconded and adopted.

The PRESIDENT. Is there any committee to report at this time? If not, the Association will proceed with its regular business for the afternoon, which is, first, a general discussion of the recent prevalence of smallpox in Massachusetts and the lessons taught by it. I will call upon Dr. McCollom to say something concerning the recent epidemic in Boston.

Dr. J. H. MCCOLLOM. Mr. Chairman and Gentlemen: Smallpox in Boston has been a rare disease until within the last six or eight months. Perhaps it will be well at this time to look back to the earlier history of Boston previous to the discovery of vaccination. Previous to 1789 there were five distinct epidemics of smallpox in this city. These epidemics were so severe that in each of them nearly one-third of the inhabitants succumbed to the disease. It was during one of the later of these epidemics that inoculation came into use. In order to ensure the full benefits of inoculation, a hospital was established at Noddle's Island, one at Point Shirley, and one at Brookline, to which the people of Boston were allowed access. Inoculation diminished the number of deaths from smallpox, but it also served to keep alive the disease. It is interesting to notice that out of 5,075 inoculations at Point Shirley, there were only five deaths, showing that inoculation did diminish the severity of the disease.

In 1800, vaccination, the discovery of Jenner, came into use. I have here a paper published by the Board of Health of Boston in 1801, proving the protective power of vaccination, and in these days when so much is heard from the anti-vaccinationists that vaccination does not protect from smallpox, it is extremely interesting to notice that nineteen children were vaccinated in the first place, and passed through the disease of cow-pox in the natural way. Shortly after they were vaccinated, these nineteen children, together with two unvaccinated children, were inoculated with smallpox. The nineteen vaccinated children were exposed to smallpox for four or five weeks, and did not contract the disease, whereas the two who had not been vaccinated contracted it. The report of the Board of Health is as follows:

“REPORT OF THE BOARD OF HEALTH.

“The Board of Health for the town of *Boston*, are happy to have it in their power this day, to announce to their fellow-citizens the result of one of the most complete experiments which perhaps has ever been made, to prove the efficacy of the Cow-Pox, as a preventive against the Small-Pox; and while they take the liberty to congratulate the public on this important discovery, they do earnestly recommend its introduction generally, and are confident that it will be the means of preserving the lives and adding to the happiness of millions.

“The utmost care has been taken, during the experiments; and a detailed statement of facts are subjoined, for the gratification of every enquirer.

“In June, 1801, Dr. Jackson addressed a letter to the Board of Health, requesting their countenance in certain experiments which he contemplated making, to prove the efficacy of the Cow-Pox, as a preventive against the Small-Pox; to which application the avocations of the Board would not permit that attention which the plan proposed by Dr. Jackson required.

“In June, 1802, Dr. Waterhouse made a similar application, accompanied with a very minute history of that disorder, from himself, and also various documents in proof of its utility, from Societies in *New York* and elsewhere, who had associated for the purpose of making experiments similar to those proposed to be made by Dr. W., by which it appeared, that the public in those places, were deriving incalculable benefits by a pretty general inoculation. About this time the Small-Pox was raging in the family of Mr. Holden, *Fifth Street*, and three persons out of five, under the care of the Board of Health, had died. The Cow-pox had obtained much credit.

“The Board of Health, deeply affected with the fatal ravages of the Small-Pox, in the family before mentioned, and viewing their Institution as founded, under God, for the preservation of the health of their fellow-citizens; and believing, as they did, that this mild and safe disorder, “*the*

*Cow-Pox*," might be substituted for that fatal and distressing one, the Small-pox; so that if generally adopted, completely to annihilate and blot it from the catalogue of human woes; determined, under the influence of these considerations, to prove by experiments, to be made under their immediate observation, whether their faith in the efficacy of the Cow-pox was well founded or not.

"With this view, the plan of the experiments proposed were published in the newspapers, for the consideration of their fellow-citizens. The Secretary of the Board was also directed, in their name, to desire the assistance of Doctors Lloyd, Danforth, Rand, Jeffries, Warren, Jarvis and Waterhouse, who, agreeably to the invitation of the Board, met them at the Health-Office. Various impediments presented themselves in carrying into effect the plan as published. It was alleged, that the distance of *Rainsford's Island* from town, would prevent attendance of the gentlemen concerned, as often as would be requisite; and to make them in town, it would be necessary to have the permission of the town, in town-meeting, it being contrary to law to inoculate with the Small-pox without it. It was therefore determined to apply for this privilege; and the town being assembled for that purpose, it was objected to, on the grounds that it would alarm the country, and injure the trade of the town. After much debate, it was voted by the town—'That the Board have power to make the experiments proposed, without the limits of the town; and to take up suitable buildings, etc. for that purpose.' It was with much difficulty a place could be obtained, comporting with the vote of the town. But started in the pursuit, the object, the happiness of mankind, the Board was determined that no difficulties which perseverance could surmount, should divert them from their purpose.

"At length Mr. Williams gave permission to erect a small building on *Noddle's Island*, and to make the proposed experiments there. Thus provided, on the 16th day of August, nineteen children, viz. :

DANIEL SCOTT, Chambers-Street.  
 ALMARIN CLARKE, Cornhill.  
 JOHN SILSBY, Prince-Street.  
 OZIAS GOODWIN, Charter-Street.  
 GEORGE GOODWIN, Charter-Street.  
 SAMUEL WATTS, Charter-Street.  
 SAMUEL RICHIE, Charter-Street.  
 ROBERT WILLIAMS, Cole Lane.  
 HENRY WILLIAMS, Cole Lane.  
 REUBEN LORING, Willson's Lane.

THOMAS TRUMAN, Dogget's Alley.  
 E. L. TRUMAN, Dogget's Alley.  
 JOHN WYER, Dogget's Alley.  
 SETH KING, Dogget's Alley.  
 GEORGE FORBES, Market-Square.  
 WILLIAM AUSTIN, Market-Square.  
 JOHN HARRIS, Fifth-Street.  
 THOMAS SPEAR, Friends-Street.  
 WM. GREENE, Hanover-Street.

Were inoculated with the Cow-pox, at the Health-Office, in presence of the Board, and of a number of gentlemen invited. The physicians who attend-

ed were Drs. *Lloyd, Rand, Jeffries, Warren, Waterhouse, Wells, J. C. Howard, and T. Danforth*; and the children went through the disorder to the satisfaction of the gentlemen, physicians and of this Board.

“Fresh Small-pox matter being obtained, through the politeness of Dr. Weeks, the proprietor of the Small-pox hospital at *Falmouth*—on the ninth of November, twelve of the children before named, together with *George Bartlett*, son of Dr. *Bartlett*, of *Charlestown*, who had the Cow-pox two years since, were inoculated at the hospital erected on *Noddle's Island*, with the Small-pox, from the matter obtained from Dr. *Weeks*—and at the same time two children of Mr. *Christopher Clark* of *Hinchman's Lane*, viz. *Thomas* and *John*, who had never had either the Cow-pox or Small-pox, were also inoculated with the latter; and in the proper time the arms (of the two *Clarks*) become inflamed—the symptomatic fever, and usual appearances attending the Small-pox, appeared—and finally pustules to the amount of about 500 on one, and 150 on the other, put forth and matterated, as has been invariably the case in all instances of the small-pox within our knowledge. From these two children, thus effected with Small-pox, fresh matter was taken; and the thirteen children before named, who were totally unaffected with the first inoculation with Small-pox, were again inoculated on the 21st day of November; and the other seven children who had the Cow-pox as first mentioned, were also inoculated with fresh matter from the *Clarks*; and the whole remained together in the same house, in the same room, and often in the same beds, without producing the least appearance of the Small-pox, either by uncommon soreness of the arm, headache, the least degree of fever or pustules—and this we certify to the public, having daily visited the Hospital ourselves, and made the most critical observations and inquiries, which are confirmed by the report of the physicians who attended the experiments (hereto annexed) and therefore are confident in affirming, that the Cow-pox is a complete preventive against all the effects of the Small-pox upon the human system.”

#### “THE PHYSICIANS' REPORT.

“With a view of ascertaining the efficacy of the Cow-pox in preventing the Small-pox, and of diffusing through this country the knowledge of such facts as might be established by a course of experiments instituted for the purpose, and thereby removing any prejudices, which might possess the public mind on the subject, the Board of Health of the town of Boston, in the course of the last Summer, came to a determination to invite a number of Physicians to co-operate with them on this important design; and with a liberality becoming enlightened citizens, erected a Hospital on *Noddle's Island*, for carrying it into execution. Accordingly, on the sixteenth of August last, nineteen boys, whose names are subjoined, were inoculated for the Cow-pox at the office, and in presence of the above-mentioned Board, with

fresh, transparent Cow-pox matter, taken from the arms of a number of patients then under this disease. These all received and passed through the disease to the complete satisfaction of every person present, conversant with the disease.

"On the ninth of November, twelve of the above children, together with one other, George Bartlett by name, who had passed through the Cow-Pox two years before, were inoculated for the Small-Pox on *Noddle's Island*, with matter taken from a Small-pox patient in the most infectious stage of that disease. The arms of these lads became inflamed at the incisions, in proportion to the various irritability of their habits, but not to a degree greater than what any other foreign, virulent matter would have produced. The Small-pox matter excited no general indisposition whatever, through the whole progress of the experiments, though the children took no medicines, but were indulged in their usual modes of living and exercise; and were all lodged promiscuously in one room.

"At the same time and place, in order to prove the activity of the Small-pox matter, which had been used, two lads, who had never had either the Small-pox or Cow-pox, were inoculated from the same matter. At the usual time, the arms of these two patients exhibited the true appearance of the Small-pox. A severe eruptive fever ensued, and produced a plenteous crop of Small-pox pustules, amounting by estimation, to more than five hundred in one and two hundred in the other.

"When these pustules were at the highest state of infection, the thirteen children before mentioned, were inoculated a second time, with recent matter, taken from the pustules, which said matter was likewise inserted into the arms of the seven other children, who were absent at the first inoculation. They were all exposed, most of them for twenty days, to infection, being in the same room with the two boys, who had the Small-pox, so that, if susceptible of this disease, they must inevitably have received it, if not by inoculation, in the natural way.

"Each of the children was examined by the Subscribers, who were individually convinced from the inspection of their arms, their perfect state of health, and exemption from every kind of eruption on their bodies, that the Cow-pox prevented their taking the Small-pox, and they do therefore consider the result of the experiment as satisfactory evidence, that the Cow-pox is a complete security against the Small-pox.

"JAMES LLOYD.  
ISAAC RAND.  
SAMUEL DANFORTH.  
JOHN JEFFRIES.  
JOHN WARREN.  
THOMAS WELSH.

BENJAMIN WATERHOUSE.  
JOSIAH BARTLETT.  
JOHN FLEET, jun.  
JOHN C. HOWARD.  
THOMAS DANFORTH."

(Then follows a certificate made by Dr. Bartlett.)

" CHARLESTOWN, Dec. 15, 1802.

" This may certify, that my son, George Bartlett, at the age of eight years, was inoculated for the Cow-pox," (of course, in these days we would say he was vaccinated, but that was the term in use at that time,) " on the eleventh day of November, 1800; that the appearance of his arm, and the symptoms, so fully corresponded with the plates and publications I had then seen, as to convince me, and others of my medical friends, that he had the disease.

" JOSIAH BARTLETT,

" *Fellow of the Mass. Medical Society.*

"To the President and Members of the Board of Health,

" Boston."

" BOSTON, December 8, 1802.

" We, Susanna Truman and Lucy Learned, nurses attending on the experiments corroborating the efficacy of the Cow-pox do certify that there was not the least sickness or appearance of Small-pox among any of the children who were subjects of the same, during their stay at *Noddle's Island*, excepting the two boys, Thomas and John Clarke, who had never had the Cow-pox, and were inoculated for the Small-pox, with a view to render the experiment more complete.

" SUSANNA TRUMAN.

" LUCY LEARNED."

" Health-Office, BOSTON, December 16, 1802.

" Published by order of the Board of Health.

" ISAIAH DOANE, President.

" R. GARDNER, Secretary."

It seems to me that this is an extremely valuable and very interesting document, and I will present it for your inspection.

On this chart you will see the deaths from smallpox in Boston for forty years—from 1852 to 1871, and from 1874 to 1893. The slight epidemic of 1872 and 1873 has been purposely omitted, as this was an exceptional time, and no reliable deductions could be drawn from it. During the twenty years commencing with 1852 and ending with 1871, when the average population was 187,969, there were 1,197 deaths from smallpox in this city. In 1852 there were 12 deaths; in 1853, 6; in 1854, 118; in 1855, 132; in 1856, 78; in 1857, 2; in 1858, 3; in 1859, 156; in 1860, 162; in 1861, 7; in 1862, 13; in 1863, 11; in 1864, 113; in 1865, 115; in 1866, 51; in 1867, 144; in 1868, 8; in

1869, 6; in 1870, 32; in 1871, 28. As I said before, the total is 1,197, with a population of 187,969.

You must also bear in mind that communication with foreign countries was not nearly so rapid as now, and that a person, during the years from 1852 to 1871, if he contracted the disease in Liverpool, would be very sure to be taken ill before the vessel arrived here. During the twenty years from 1874 to 1893, with an average population of 402,000, there were only 36 deaths. The number of deaths each year is as follows: In 1874 there were 2 deaths; in 1875, 1; in 1876, 2; in 1877, 4; in 1878, 0; in 1879, 0; in 1880, 1; in 1881, 6; in 1882, 8; in 1883, 1; in 1884, 1; in 1885, 2; in 1886, 0; in 1887, 0; in 1888, 2; in 1889, 2; in 1890, 0; in 1891, 0; in 1892, 0; in 1893, 4.

I would like to call your attention to this diagram that was taken from the report of a smallpox epidemic in Sheffield, England, from 1887 to 1888. You will see that there are six large squares, and that each of the large squares is divided into ten smaller squares. The squares divided by diagonal lines represent cases; the black squares represent deaths.

It will be seen from this diagram that of 4,493 vaccinated people exposed to smallpox under ten years of age, only 7.8 per cent. had the disease, and only one-tenth of one per cent. died; that of 13,423 vaccinated people of ten years of age and upwards, 28.1 per cent. contracted the disease, and 1.4 per cent. died; that of 18,220 vaccinated people of all ages 23 per cent. had the disease and 1.1 per cent. died. On the other hand, it will be seen that of 263 unvaccinated children under ten years of age exposed to the disease, 86.9 per cent. contracted it, and 38.1 per cent. died; that of 469 unvaccinated people ten years of age and upwards, 68.6 per cent. contracted the disease, and 37.1 per cent. died; that of 736 unvaccinated persons of all ages exposed to smallpox 75 per cent. contracted the disease, and 37.2 per cent. died. The difference between a death-rate of one-tenth of one per cent. in vaccinated children under ten years of age, as compared with a death-rate of 38.1 per cent. in unvaccinated children under ten years of age, can only be explained by the protective power of vaccination; and a similar remark is true regarding the difference in death-rate between the vaccinated of ten years of age and upward, as compared with the death-rate of the unvaccinated of ten years and upwards.

In Boston during this present epidemic, or, I should hardly say epidemic, but during this outbreak of the disease, we have had ninety-five cases of smallpox, or, to speak accurately, we have had ninety-six cases, because there has been one case reported since I came to this meeting. There have been twenty-six deaths. No vaccinated person has died. I have seen the arm of every person who has been at the hospital. I have scarched carefully for a scar in every instance, and in no instance where I have seen a scar that was satisfactory to me, or a scar on account of which

I should have given a certificate to allow a child to go to school, has a person been seriously ill.

Much has been said about the possibility of making a diagnosis before the appearance of the eruption. It is absolutely, morally and physically, impossible for anybody to make a diagnosis of smallpox before the eruption appears, and when I speak of the eruption I mean the eruption of smallpox. I do not mean the initial rash. Smallpox in a vaccinated person is very frequently so mild that it is almost impossible to make a diagnosis unless the physician is familiar with the disease. In regard to the isolation of persons who have been exposed to smallpox, it does not seem to me that this is important if other precautions are taken. It has been our custom in Boston, after a case of smallpox has been removed to the hospital, to have the patient's house visited every day or every other day by some physician. The moment that there is any appearance of illness in any member of the family, that person is placed under the most rigid supervision, and as soon as the eruption appears is removed to the hospital.

[At this point Dr. Walcott was obliged to retire from the meeting, and Dr. Durgin was called to the chair.]

The CHAIRMAN. Dr. Chapin, tell us something about smallpox up in Chicopee.

Dr. CHAPIN. Mr. President and Gentlemen: I do not know much about smallpox in Chicopee. I am not from Chicopee. I am from Springfield. Smallpox appeared in Holyoke some few weeks ago and later appeared in the city of Chicopee, about three miles north of Springfield. It appeared in a — there is nobody here from Chicopee, is there, Doctor?

The CHAIRMAN. No, sir; I think not.

Dr. CHAPIN. It appeared in a tenement house belonging to the Dwight Manufacturing Company of Chicopee. I think there were about twenty-eight people in the tenement house. The case that was discovered was some two weeks old. The whole population of the tenement house had been exposed, together with certain other people working in the mill. The Board of Health quarantined the tenement and the people in the building, and the disease has not extended much outside of the building in which it appeared,—I think not more than half a dozen cases. We are very closely connected in Springfield with Chicopee, but fortunately no cases have appeared among us. A few cases have sojourned with us, but those cases left the town the day before the eruption appeared. That is all I know about smallpox in Chicopee.

The CHAIRMAN. Dr. Field, of Lowell.

Dr. FIELD. Mr. Chairman: Dr. McCollom has said that we cannot make a diagnosis of smallpox before the eruption breaks out. The trouble has seemed to be with us in Lowell that we could not make the diagnosis

after the eruption broke out, because some of our oldest physicians there, physicians whom the Board of Health employed, thinking they knew more about smallpox than we did, were unable to tell the disease when they saw it. The first thing I thought of this afternoon when that paper was passed around was, if the physicians of Boston ninety years ago were convinced that vaccination prevented smallpox, we ought to be ninety times as much convinced of it. As they were then, we ought to be cranks on the subject of vaccination just as much as some of these people are cranks on anti-vaccination. We ought always, in season and out of season, to urge vaccination upon the people. If we are members of a board of health, we ought to have our neighborhood and employees vaccinated, and keep them vaccinated all the time. As physicians, when school children come to us in the fall to be vaccinated before they go into school, we ought to advise their parents and older brothers and sisters to be revaccinated. Do not put off vaccination until the epidemic occurs, but keep the inhabitants of the city vaccinated all the time.

In Lowell we had a very severe epidemic of smallpox in 1881, one hundred and eight deaths occurring. Since then in two or three years there have been outbreaks of smallpox, with a few deaths. Last Christmas the present epidemic occurred. On the afternoon of that day we found a young bartender had been laid up for more than a week, and on the next day we found two girls who had been ill four or five weeks, so there were three cases which had been ill this length of time. This young bartender was attended by a physician who was dismissed just as the eruption began to break out. On the next day a young man who had never seen smallpox was called in and treated the case as a case of chicken-pox. The case was so much advanced that when I saw it, the day after Christmas, the pustular stage was already reached. At that time we had established a vaccination office in the barroom in which the young man was employed, but some members suggested that if we use such a very attractive place for a vaccination office the whole city of Lawrence would come up there, and so that idea was abandoned.

Our consulter, whom we called in on that case, for we had not seen more than four or five cases of smallpox, remarked that the first cases were the two girls whom he had seen three or four weeks ago. We found the house and found the two girls convalescing, but covered all over with scars, about two thousand, although they were not counted.

The history of the disease was that of a mild disease, but from these girls we traced it to this man, and afterwards to another person, tracing the contagion from one to the other. It seemed impossible that two girls had been suffering from smallpox for four or five weeks, and that persons had been in and out of the house during that time. Dr. Abbott, who came up

afterwards to see the case, made a diagnosis, not from anything he could see on the patient, because you could see nothing but scars, but from the history of the contagion, spreading from these girls to this man and to others.

So we had three cases of smallpox at the start to which people had been exposed in great numbers. Afterwards we had other cases, nine in all, with three deaths. One case was a bad case, which we traced to this man, and which we sent to the hospital. The eruption came out when the vaccination sore on the patient's arm was at its height.

We had two other interesting cases. One was a milkman, who, when the eruptions were on his forehead, had been delivering milk about the city. Another was a nurse in a smallpox hospital who had had smallpox in her childhood, and we made the mistake of not vaccinating her, and after all the other patients had come down, she finally came down with the disease, and recovered.

Our treatment was to send every patient to the hospital. Following out the suggestion of Dr. McCollom, our hospital too was on the land, and I think almost every city, excepting those on the seaboard, would have to have a hospital on the land. We disinfected the premises as far as possible. I wish that we and all the cities in this State might have an apparatus for the disinfection of clothing by steam, the way they do in Boston. Our clothing we took to the cremator and burned up.

On vaccination I do not want to say anything. That subject comes up later. I simply want to speak of the large portion of the inhabitants of Lowell who were vaccinated. When we found that that milkman had been distributing milk throughout the city, we ordered a house-to-house vaccination in all parts of the city which he visited. About one-sixth of the city must have been vaccinated. In addition to that, some ten thousand were vaccinated at the City Hall and eight thousand at the hospital. 26,500 in all vaccinated out of 87,000 inhabitants.

We believe in Lowell most thoroughly in quarantining a house, and we have an idea that if the houses had been quarantined in Boston, possibly we might not have had the smallpox in Lowell. We cannot prove that, but we know some of these patients who afterwards came down with smallpox would have gone off, and what town they would have gone to we do not know.

**THE CHAIRMAN.** Mr. Bayles, of Lowell.

**MR. BAYLES.** Mr. Chairman: I can only talk of smallpox from the point of view of the layman. I feel like taking some exceptions to Dr. McCollom's view of isolation. The cases of smallpox in Lowell occurred in a very compact community. The two girls who had been sick for five weeks were in a house adjoining the house which was first reported to us. The young

man had been visiting back and forth. He was acquainted with the young women, and his sisters were in the habit of going back and forth; in fact, the space between the two houses was only about five feet. The morning after Christmas, when we found these two girls sick, the question arose as to what we should do. It was a very serious question with us, but we finally decided that the best thing to do was to quarantine both houses, so we put a guard there. We employed policemen, but I should advise any Board of Health of any town not to employ policemen, because they are very expensive luxuries. [Laughter.] We found we had to pay the policemen three days for one. Then we had to keep them pretty well supplied with stimulants, because they had the idea that if they had plenty of rum they would not have the smallpox. [Renewed laughter.] We subsequently employed our own men who had been appointed constables, and the results were more satisfactory. They were better satisfied with what they got, and satisfied with reasonable compensation. We quarantined those two houses.

When the next case broke out it was across the street, distant perhaps about fifty yards from the first two houses. In that case the young women had visited back and forth in the house where the young man had been sick and where the two girls had been sick. We quarantined that house, which was over the barroom in which the young man was employed.

The next case occurred around the corner, distant perhaps about twenty yards from the house in which the first patient was found, that is, the first patient that we were apprised of, and then we put that quarantine there. We had a very compact district, and there was no difficulty whatever in keeping people within bounds. They took to it very kindly. We had to provision them and give them everything they wanted, in fact, a good deal more than they wanted, for some of them were very shrewd, and they discovered that they wanted barrels of flour, and we found subsequently in one place where we had sent a barrel of flour that after quarantine was removed sixteen days later, the barrel of flour was still intact. We had six families in quarantine. The clothing and furniture in the rooms of two of the patients were destroyed. Had we suitable apparatus for disinfecting we would have been spared that expense, but we had no means of disinfecting other than sulphur, although I have not much faith in it. I think the policemen who went anywhere near the place went in and smoked themselves two or three times a day.

We directed a rigid quarantine and a very thorough vaccination, which tended to shorten the outbreak. I do not think that it would have been possible for us in Lowell to permit any of the people living in the house of the patient to go about at their work, because the popular sentiment there is very much opposed to anything of the kind. People have a great dread of

the disease, and as we have so many factories there, everybody knows everybody else, and in a large mill it soon became known that Mary Flynn came from a house where they had smallpox, and we were obliged to establish a quarantine. As it was, we had numerous complaints from officious people who were always watching about for a policeman carrying cans to the people who were quarantined, and we had to shut off their beer. There was a great deal of complaint about that.

In regard to the moving of patients. We had a very antique and ancient vehicle, which in its palmy days had been used as an express wagon. It was impressed into the smallpox business about 1871, then carefully stored away in a shed, and reproduced again in 1893. We used it for an ambulance, and at night we used for a hearse. We learned from that that there was no reason why a person afflicted with smallpox should be treated with any such indignity, and it resulted in our purchasing an ambulance, which we have now, a very respectable vehicle, for conveying our patients to the hospital.

With regard to the hospital. In the old days it was considered anything was good enough for a small-pox patient. A person afflicted with the disease was treated much as a criminal would be,—hustle him out—

- “Rattle him over the stones,  
Only a pauper whom nobody owns.”

And so, in 1871 the city of Lowell erected what they called a pest-house. I trust the members of the Board of Health will never use that term. It is a very ominous and very objectionable term. It has great effect on ignorant people, who regard a pest-house as something terrible, something without hope, whereas the term “hospital” has not the terror that the name “pest-house” has. We have been trying up there to get the new set of men, when they make their reports, to drop the term “pest-house.” I think it should not be used, just because of the effect it has upon the minds of the people. We found it very difficult to remove people to the pest-house. They did not want to go there because they thought they would not be well treated. Perhaps they were not treated well in the old days when they went to the pest-house. We tried to give them the best treatment we could under the circumstances.

Our hospital is a large barn-like structure having seven rooms. It has no ventilation, no sewerage, no water, no gas, and no heating apparatus—only stoves—and in the winter when the temperature was low and the wind blew, it was a very difficult matter for us to keep all the patients comfortable.

There is no reason why a smallpox patient should be treated any differently than a patient suffering from typhoid fever or any other disease.

Common humanity should teach us to do the best we can for them, and one of the lessons we have learned from this epidemic is that the city of Lowell needs a new hospital, and is going to have one.

I do not know that I can say anything more about the matter. We have simply learned this: that we believe in quarantining all cases, and we believe that when a patient is submitted to our care or when we take charge of a patient, we are in duty bound, not only from a moral sense, but the sense of humanity, from every sense we are bound to give the patient the very best care we possibly can. [Applause.]

The CHAIRMAN. There are still a few minutes more which we can spare upon this subject before taking up the second one on the programme, and if there are other gentlemen who would like to say a few words on the lessons taught by the recent prevalence of smallpox, I should be glad to hear from them.

Dr. SWIFT, of New Bedford. Mr. President: You may be interested in a report of a few cases which we had in New Bedford summer before last, and I will read a short report of these cases.

On June 3, 1892, my attention as city physician was called to suspicious illness in the middle tenement of house numbered 944 South Water street.

The investigation showed a young man, John Andrews, in the pustular stage of smallpox; two children of George Rivers, at the beginning of the stages of desquamation; a young woman, Andrews, who had had a mild case of varioloid in the desquamative stage; and a baby of George Rivers two years old, in the pustular stage of smallpox.

Upstairs in the same house a French family lived; a man named York, with his wife and child, were visiting them. This child was in the pustular stage of smallpox.

The attending physician had considered these cases chicken-pox, and asked me to see them as interesting cases of that disease.

I asked him if he considered them suspicious, and he said he did not. I think the community is exposed to much danger by the ignorance of practitioners in regard to smallpox.

Exactly how physicians are to be trained in the diagnosis of this disease I do not pretend to say; but if there ever is a law passed regulating the practice of medicine in Massachusetts, I trust this Association will insist on at least a thorough theoretical knowledge of smallpox as one of the requirements.

The smallpox hospital had not been open for eleven years; but everything had been kept in readiness for cases, and the patients were all transferred to the hospital on the same day.

On the next day, another suspicious case was reported at 646 South Water street. It was found to be a case of smallpox in the beginning of

the pustular stage, the patient being Charles Andrews, a brother of John Andrews. He was immediately transferred to the smallpox hospital. The other people living in both infected houses were transferred to the old poor-house on French avenue, where a quarantine station was established for persons who, it was thought, had been in any way exposed to the disease.

The cases had been going on for at least two weeks, and it was impossible to say how far the contagion had gone.

On June 8, it was reported that William Andrews, a brother of the men who were already in the hospital, was ill. On investigation, he was found to have a mild case of varioloid. He lived at the east end of Coffin avenue. He was transferred to the hospital, and the other people in the house, to the quarantine station.

On June 9, a case was reported at 305 South Second street.

It proved to be a boy with a light case of varioloid. He was quarantined at home, and another family living upstairs in the house was transferred to the quarantine station.

On June 10, one of the children of the French family named Lemaux, who had lived upstairs at 944 South Water street, came down with smallpox at the quarantine station, and was at once transferred to the smallpox hospital. On June 14, the other Lemaux child also developed smallpox, and was transferred from the quarantine station to the hospital.

On June 15, Joseph Francis was found to be suffering from smallpox at 169 South Second street. He was employed by a grocer, and had taken provisions to the Rivers family. He was at once transferred to the hospital. He was seen at the beginning of the vesicular stage.

The day after he was transferred he had profuse hemorrhages from the nose, mouth, kidneys, and bowels. There were very few pustules, but ecchymotic spots appeared on his extremities, and on the calf of the left leg there was a slough about two inches across. He died the night of June 16, and was buried the next day in the burying-ground near the hospital.

The smallpox hospital, being a small building, was crowded, and it was thought best to construct a cheap building, to be used in case other patients had to be brought to the hospital.

A building was put up with eight rooms in it. It was not necessary to transfer any case to this building, but it was used for disinfecting purposes. One of the Rivers children, aged two years, had a severe confluent case of smallpox, and died from exhaustion. It was buried in the burying-ground near the hospital the next day.

On June 18, a case of smallpox was reported at 592 South First street. This was a French boy who worked in a cotton mill, and had no apparent connection with the other cases. He was at once transferred to the hospital. He lived in a large three-story tenement house, and it was impossible to take

all the inmates to the quarantine station. Only the families living on the same floor where the case occurred were transferred. The others were advised to leave the house, and they did so.

After the discovery of this case, it seemed probable that the epidemic might be extensive, and a general vaccination was advised and ordered by the board. This was carried out in all the factories in the city, and in the schools. A house-to-house vaccination was also ordered in the vicinity of the infected houses. There were 14,456 vaccinations made.

The physicians were instructed to vaccinate all persons who had not been vaccinated within five years.

All the tenements where cases of smallpox had been found were thoroughly fumigated and cleaned. All the furniture, carpets, and clothing that had been exposed were destroyed. The tenements were washed with corrosive sublimate solution, and were entirely repainted and papered.

The patients were kept in the hospital until all signs of desquamation had cleared up. Meanwhile they were washed with corrosive sublimate solution and soap. When they were released, they were thoroughly washed with a corrosive sublimate solution and given an entire outfit of new clothing. They were allowed to take nothing away from the hospital.

After being thoroughly disinfected in this way, they were transferred to the quarantine house, and kept there several days before they were allowed to come to the city.

No expense or trouble was spared to do this work thoroughly, and the result was that no new cases developed, either from the infected tenements or from the patients themselves. In my opinion, the importance of the quarantine station in this epidemic cannot be overestimated.

It enables us to vacate the infected houses at once, and not to have them occupied again until they had been thoroughly disinfected; it removed the persons living in these houses at once from a possible source of infection in the house, and it gave us the opportunity to watch the persons who had possibly been exposed to infection.

Establishing a quarantine station to which all persons who lived in the houses where cases of smallpox occurred were transferred, had much to do, I believe, with our success in stamping out this epidemic.

We had no power to compel them to go, but told them they must either go or be quarantined at home. If they remained at home they would not be allowed to work, but if they went to the quarantine station we would pay them their ordinary wages. Even on these terms we had much difficulty in persuading them to go.

We consulted our city solicitor in regard to this matter and he told us we had full power to quarantine people who had been exposed to smallpox in their houses, but no law gave us power to compel them to vacate their houses or to transfer them to a quarantine station.

I think the importance of vacating the infected houses cannot be over-estimated. In almost all tenement houses certain parts are used in common and people living in infected houses may be exposed to infection in this way. It is almost impossible to properly clean a house with people still living in it. It seems to me power should be given boards of health to vacate houses where cases of smallpox are found and transfer the people who may have been exposed to the disease to a quarantine station for observation.

Two cases of smallpox appearing in the quarantine station showed the wisdom of this precaution. There were thirteen cases in all; one a case of hemorrhagic smallpox, the patient dying before the pustular stage had developed; one case of confluent smallpox in a child of two years, the patient dying of exhaustion; two severe cases of smallpox in John and Charles Andrews; three confluent cases in the two Lemaux children and the York child; all these three children were very ill, but recovered; three cases were mild smallpox,—the two Rivers children and the French boy; and three cases of varioloid.

A point that came up during the epidemic may be instructive to the Association. The law of 1883 requires that when a case of smallpox occurs in a city or town, unless the local Board of Health notify the secretary of the State Board of Health within twenty-four hours of the occurrence of the case, the city or town loses its chance of reimbursement from the State, in case the patient proves to be a State pauper.

The clerk notified the secretary of the State Board of Health on the postal cards supplied to local Boards by the State Board for the weekly report. On this card one space is left for cases of smallpox. The cases were reported at once as one, two, or more, as they occurred.

This notice was not considered sufficient by the secretary of the State Board of Health and he failed to notify the Board of Lunacy and Charity, as he is required to do. Captain Shurtleff, secretary of the Board of Lunacy and Charity, held that he had received no notice and that we had forfeited our chance for any reimbursement. The matter was finally referred to the Attorney-General, and he decided that our notice was sufficient, as all that was required by law was a notice of the occurrence of a case of smallpox within twenty-four hours of the time it was reported to the local Board. Mr. Shurtleff, secretary of Board of Lunacy and Charity, however, held that for their department a special notice was required, as their general rule was to give no aid until after a report in full was made of a case. This view was not in accordance with that of the legal gentleman in the Attorney-General's office, but as the matter of the amount of money to be reimbursed is left by law entirely to the decision of the Board of Lunacy and Charity, we went no further to test the question. It seems to

me that all these laws need thorough revision, and that this Association should take some action in regard to this matter.

Dr. W. G. McDONALD, of Boston. Mr. Chairman: I did not intend to say anything on this matter, but since the discussion has started there are two or three points which have come to me. In the first place, in regard to Dr. Field's statement about quarantining in Boston. If Boston had been quarantined better, there would have been less smallpox. I can say this, that after a case was found in Boston, there was no question about keeping the patient in the house. The patient was removed to the hospital. The clothing, bedding, and such things were fumigated. Not only was that done, but the patient was questioned as to where he had been during the last few weeks. The patient's family were questioned, and every trace was followed up as far as possible. Every person who had come in contact with the patient was chased and followed for the next two weeks. It was stated that in Lowell one person knew the other. In large cities each one cannot know the other. Conditions have changed in large cities in the last twenty-five years. We have had a large tide of emigrants and a much different class of emigrants in the last twenty years. We have now one hundred thousand inhabitants more than in 1872, and a different kind of emigrants. At that time the most of the people who came here were from the British Empire or from Germany. They were people who came here to settle and become citizens of this country and become amenable to our laws and follow our habits. They are not so to-day. We have to-day Russian Jews; we have Italians, we have Portuguese and Chinese. We have a different class of people who come here to follow their own customs,—people whom it is very difficult to trace. We have in every instance tried to trace the case to its origin, and we have tried to follow it to its conclusion. In many cases we have failed in tracing it to its origin because of the difference in the people who are here to-day. That was one of the important lessons of this epidemic, different from any other epidemic that we have had.

Besides that, we have the question that has been raised already as to pest-houses. People dread a pest-house. We have, not a pest-house, but a hospital, with the most approved appliances, the most careful nursing and scientific treatment. That should be considered by the people, and the people must be educated in order to appreciate these things. There are cases where people have concealed themselves, and we found them only when the eruption broke out.

We have also the question of the education of physicians. That is a very hard thing, because smallpox is a rare disease, and being rare, a student may go through his course without ever coming in contact with a smallpox case; and if in his course a smallpox case arises, we cannot show it to him—we cannot show it to the entire class. The only education the

students can get is a theoretical one, and that they are as apt to forget as they are the types of any other disease which we do not happen to have in this climate. But we can teach them in varicella. We have had here one such case where they followed an advanced case of varicella, and each student, I think, should be taught in that as well as vaccination.

DR. FIELD. Mr. Chairman, I think the conditions in Lowell are very different from the conditions in Boston. Possibly if Dr. McCollom was in my place in Lowell he would quarantine his smallpox patients there, and probably if I were in his place in Boston, I would not quarantine my smallpox patients here. In Lowell the people largely know each other. I do not mean the patients, I mean the families, Doctor. The families in this locality were all related directly or indirectly through marriage, and they may have been visiting backward and forward, and we felt sure that after we had quarantined the houses we would have no walking cases of smallpox. Under the circumstances, we think it was the part of wisdom to quarantine.

MR. BAYLES. Mr. Chairman: In Lowell our conditions are very different from those in Boston. Our people work in the factory. In the first instance, where we took that young man, our first case, there were eight persons living in that house. One of those persons was taken sick with the smallpox ten days after we had removed the case. That young woman worked in a factory employing about two thousand people. You can readily see the danger there would be in allowing that family to go to work in the mill among all these people. There were three of the quarantined people working in a factory employing two thousand, two in a mill employing three thousand, and two in a mill employing five hundred. The agents of those mills were extremely solicitous that we should allow no one from the infected houses to come to work, and they absolutely refused to admit them into the mill. They feared that the disease might be brought into the mill, and that they would be subjected to great expense and annoyance in disinfecting their goods before they could ship them to market.

I may also say in respect to the daily examination of the people living in infected houses, that Dr. Field went every day and made an examination of all the people who were quarantined.

DR. MCCOLLOM. Mr. Chairman: I would like to say that this person could not have communicated the disease until she was taken ill. That was just the point exactly. After having been exposed to smallpox, and after having the clothing thoroughly disinfected, the person could not communicate the disease.

DR. FIELD. Don't you think she could carry the disease?

QUESTION. Don't you practically quarantine all other diseases, as, for instance, where children go to school where children have had scarlet fever?

Dr. McCOLLOM. We do not have anything to do with that. I think it would be better for the children to be inspected in every case of scarlet fever and diphtheria. I think by inspection, although it will require a great deal of work, much more good will be accomplished for the community, and will stamp out the disease much more thoroughly than by quarantining. If we watch them and disinfect their clothing before they come down with the disease, it is impossible almost for them to communicate the disease.

Mr. BAYLES. Sometimes they are too slippery to watch, Doctor.

Dr. ———. Mr. President: It seems to me this method of Dr. McCollom causes a good deal of trouble. Of course, it may be all right as far as the people are concerned, but the rest are put to considerable trouble. I think if the house had been quarantined in the first place, they would not have got to Lowell.

Dr. SWIFT. May I ask a question? When cases have been coming on in a house for some length of time, is it not a safer method to vacate that house? There are certain parts of tenement houses that are used in common; for instance, the basement usually, and possibly the water-closets; and is it not a safer way to vacate the house, if that is possible, at once, and to have it thoroughly cleaned: remove the people, if they have not already been exposed to the disease, and to permit them to come back when the house has been thoroughly cleaned and thoroughly disinfected, and in case of the patients being sent to the hospital, when the people are perfectly well return to the house? It seems to me that is the most thorough way of proceeding, if it is possible to do it. Of course, I do not mean to say it is always possible. In such a place as New Bedford the houses are small, and it is possible in most cases. The houses, as I have said, in this small outbreak were vacated and the people were not allowed to go back. We did not absolutely control them, but we persuaded them not to go back until everything was perfectly safe for them to go back. Meanwhile we supported them,—bribed them to stay away.

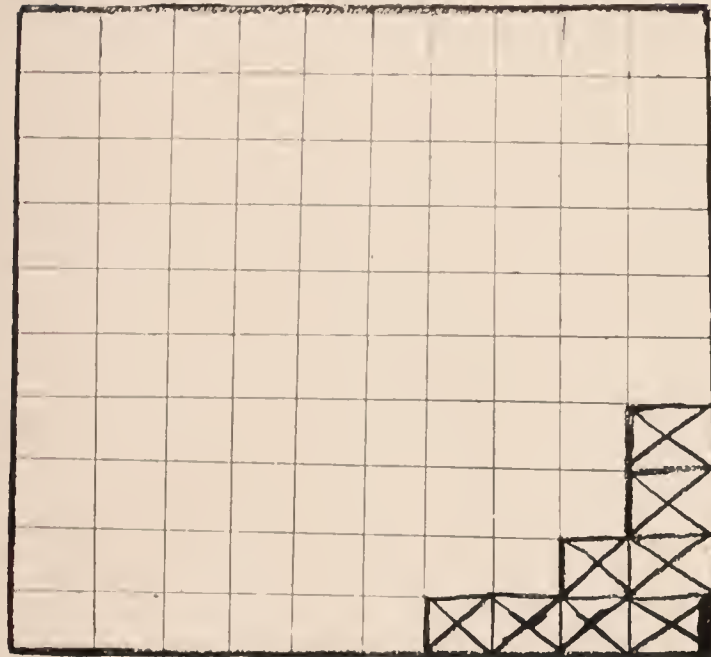
The CHAIRMAN. It is getting rather late, and in justice to our next subject I think we shall have to take it up now,—“Vaccination and Its Results.” I will call on Dr. Abbott, Secretary of the State Board of Health.

Dr. S. W. ABBOTT. Mr. Chairman: The transition from smallpox to vaccination is so natural, that I may say a word about smallpox before referring to vaccination. There may be some here who have never seen a case. Here are some photographs taken at the smallpox hospital about ten years ago, which give an excellent idea of its appearance. I will pass them around so that you may see what the typical cases are. There are five or ten pustules to each square inch of body, not quite confluent, but very nearly so. The photographs show the stages from the very first day of the outbreak to the fifteenth day or thereabouts.

# Diagram of the Cases of Smallpox in the Vaccinated and Unvaccinated at Sheffield, England, 1887-1888.

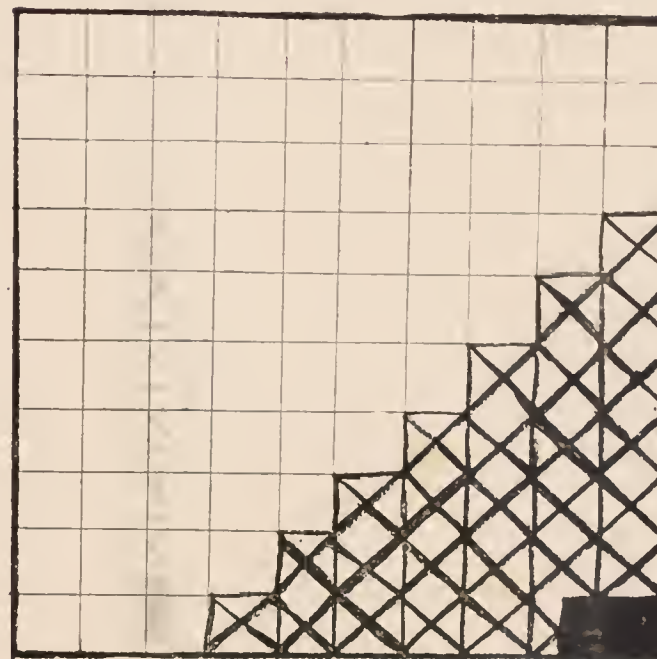
VACCINATED.

Cases, 7.8 per cent. Deaths, 0.1 per cent.



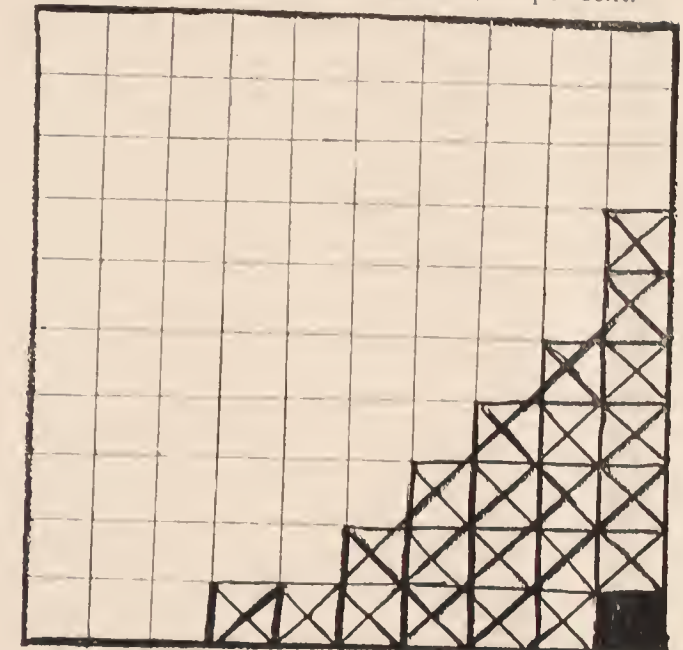
Under 10 years of age.

Cases, 28.1 per cent. Deaths, 1.4 per cent.



10 years of age and upwards.

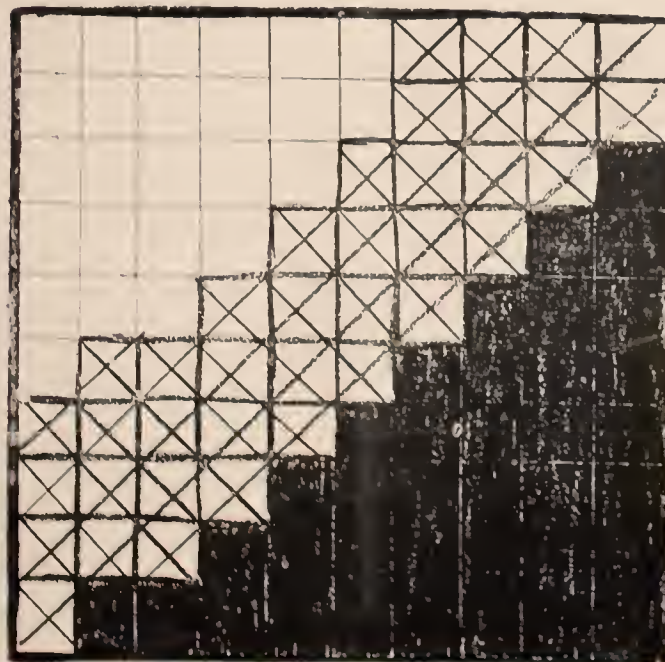
Cases, 23.0 per cent. Deaths, 1.1 per cent.



All ages.

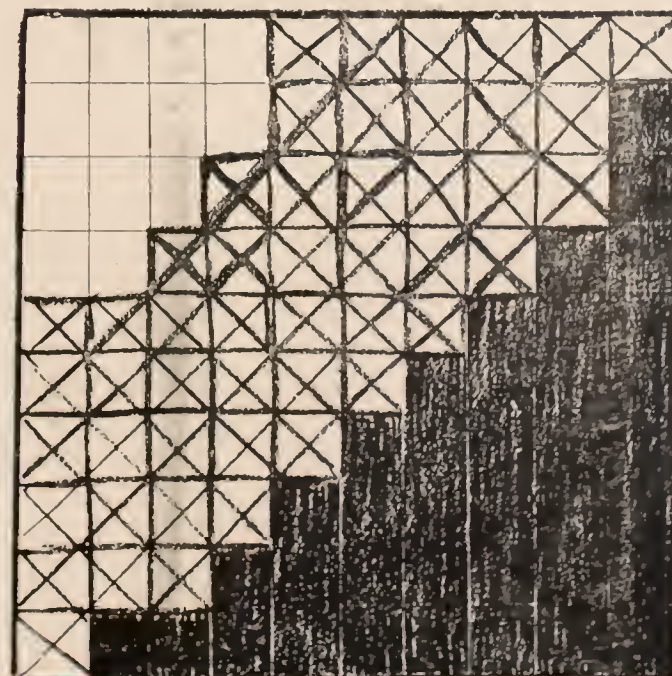
UNVACCINATED.

Cases, 86.9 per cent. Deaths, 38.1 per cent.



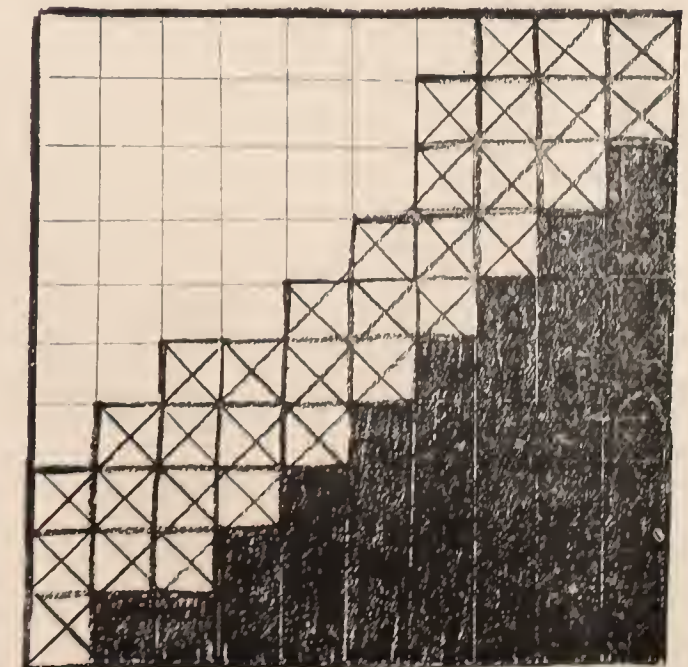
Under 10 years of age.

Cases, 68.6 per cent. Deaths, 37.1 per cent.



10 years of age and upwards.

Cases, 75.0 per cent. Deaths, 37.2 per cent.



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Another point is in regard to the time of incubation. Dr. L. Parkes has published a most excellent summary in regard to infectious diseases, in which he gives the least time of incubation at nine days and the longest time fifteen days. Not less, I should say, than fifteen days, would be a pretty good rule for quarantine purposes. Upon this question of vaccination the information to be obtained from the medical journals is slight. In fact, in America, almost throughout the whole country, statistics are entirely wanting on this subject. I have here a tabulation of all the cases that have been reported to us, which probably constitute about all in the State, at least nine-tenths, — from the first of January, 1893, and also a more complete summary for ten years. There have been since that time, that is, in about fifteen or sixteen months, some 188 cases reported to us in the State, all of which, excepting eleven, have been reported within the past seven months. Those eleven were in the early part of 1893. Then there were none for several months until the outbreak began in October, and increased. Then I have a tabulation of cases including the most of those back to 1885. The total number of cases reported to the State Board of Health was 267. There have been enough within the last few days to bring the number up to about 300 or 310. The percentage of deaths is 19 1-2. This is about the average fatality for smallpox. Generally the fatality of it is about 18 to 20 per cent., and that is just where the anti-vaccinationists at the State House always attempt an argument,—that the fatality in this century is no different from what it was in the last century, but they say nothing about the comparative fatality of the vaccinated and the unvaccinated.

I have carried this out as far as possible, and taken the fatality among the vaccinated and unvaccinated in Massachusetts. Of course, there are some cases that have to be thrown out altogether; the facts are unknown or indefinite, based entirely upon some hearsay statement of the patients themselves after the eruption has broken out, and you cannot tell whether they were vaccinated or not. Out of 104 persons who were vaccinated only 6 died, while of 122 persons unvaccinated the deaths were 35, or 28.7 per cent.—nearly five times as high a percentage. The doubtful cases were 41. Deaths among these were 11, a percentage of 26.8, nearly the same as the unvaccinated.

The proof of vaccination statistically is made in several ways. Some methods are more convincing than others. For instance, one proof is that the mortality from smallpox in this century is very much less than it was in the last century. For instance, there were 840 deaths in Boston in 1721, out of 12,000 people, which would mean about 25,000 deaths to-day in the population of Boston, which would be enormous; but it is nothing in this century to what it was in the last; it is nothing now to what it was twenty-five years ago. But that is not sufficient. It is not true that

the State Board of Health, and even local Boards of Health, have accomplished all this. They have accomplished a great deal, but not all.

Another and much better proof is to take a vaccinated community, thoroughly vaccinated, and compare it with a partially vaccinated community. We have the fact that whereas Germany has forty or fifty millions of inhabitants, surrounded by other countries partially vaccinated, Germany has its law (which is not only a law, but it is an enforced and absolute law, for it is an imperial government), that a child shall be vaccinated practically before it is eighteen months old. Then every scholar must be revaccinated at the age of twelve years. Now about the only unvaccinated persons in that country are persons who have come there from Russia, where the law is very lax, or from Italy, or from France, or from Spain, or some other neighboring country; and when any of these die in Germany, of smallpox, of course the death is credited to their death-rate.

Now, the death-rate of Germany for the year 1891 from smallpox was almost nothing when compared with that of these neighboring countries.

Then another very convincing argument is the fact that in the last century smallpox was almost absolutely a disease of children,—a disease of children under ten years of age. The figures upon that subject are not very many or very great, but they relate to a few cities where old registers have been kept very carefully by the schoolmasters, town clerks and others in England, and also in the city of Geneva, Switzerland, and a few other places, where they show that smallpox was confined almost exclusively to children under ten years of age. For instance, out of a thousand persons in two or three English towns who died of smallpox, there were not more than ten or a dozen over ten years of age. We do not have that now. A very considerable percentage of the deaths from smallpox are among people who are over fifteen or twenty, simply because they have been protected by primary vaccination, and the disease is thrown forward to later ages; and as they have neglected revaccination, then we have mortality among the vaccinated, and that is where this adult mortality comes from. There are deaths among the vaccinated because they have neglected revaccination.

Now a word about those who claim to have been revaccinated, and yet have had the smallpox. If those persons had been examined carefully, we should have found that they had not been revaccinated, or that the vaccination was of a very limited character. Every person in Germany who is vaccinated is vaccinated three times on each arm, and it is very thoroughly done. I do not know that that is the law, but that is the custom, and I think in London also.

There is another point in regard to the London statistics which is shown in the law upon that subject. Every child who is vaccinated, at any rate

every one who is vaccinated at the public expense, must by law, under a penalty, be brought back to the public vaccinator at the end of one week to be examined. That is a very useful law indeed, because a great many physicians might otherwise vaccinate children and let them go without further inspection. It is a very lax mode of procedure to allow the child to pass out of your sight without seeing it again at the end of a week.

Then in regard to methods of selling vaccine lymph. In many cases we know nothing about the mode of obtaining it. That may come up hereafter. I won't speak of that now, but there is one thing which affects this question,—the age and freshness of lymph. Dr. Corey's vaccinations in London are made with fresh lymph. The calf is vaccinated at his station, and the children are brought there when the lymph is to be taken fresh, and the fresh lymph is inserted into the child's arm.

I think that would be a very good addition to our law, but perhaps it could not be enforced except where children were vaccinated at the public expense.

The CHAIRMAN. I would like to ask Dr. Abbott if he can give us some brief data as to the difference in protection between one and many scars.

Dr. ABBOTT. Well, upon that point the principal authority is Dr. Marson, of England, who has made that one point a specialty, having examined a great many cases. It is true that a thorough vaccination is more protective than a limited one. Dr. Marson gives the ratio. I cannot state what the ratio exactly is. It is a diminished one, according to the number of scars. That is, the number of persons who took smallpox with one vaccination mark was greater relatively than those who had two, three or four, or five, or six, as the case might be. It is a fact that old lymph, that is, three, four, or five weeks old, might not produce so large scar, when it produces any at all, as that which is fresh from the calf. I have noticed that myself: that sometimes lymph that is just losing its efficiency will give you a little vesicle perhaps no larger than a small pea or the head of a pin. Perhaps you may have noticed that, Dr. McCollom.

Dr. MCCOLLOM. Yes, I have noticed it, although I never use lymph that is more than two, or three, or four days old.

Dr. ABBOTT. If we could do away entirely with the selling of vaccine lymph, and have it issued directly from a station, as it is in many foreign countries, directly to the physician who uses it, coming from a source that he knows he can rely upon as to the date it is taken from the animal, and not simply the date that it is sold to him,—as I have known here in Boston,—then we should have something that would be of value to us.

Dr. GAGE, of Lowell. I have been asked to say a word or two upon the technique of vaccination, and I will speak of these points: First, what we do when we vaccinate, and how we do it, and the responsibility of boards of health in seeing it done right.

I am not going to give an argument. I am simply going to state my belief and leave to you the discussion of it.

What do we do when we vaccinate? I suppose we introduce into the body a living organism. Possibly the living organism is the cause of smallpox. That is what we do theoretically. Practically we have introduced something besides this bug into the body, a germ which causes the formation of pus in the body.

How do we do it? I will tell you now how I do it. The arm of the patient is first made clean with scrubbing with soap, and water, and brush. By "clean" I mean sterilized. Then a fresh point is scratched upon the arm; and third, the arm is kept clean by putting on a sterile dressing, which is sealed on, and remains until the vaccination has taken.

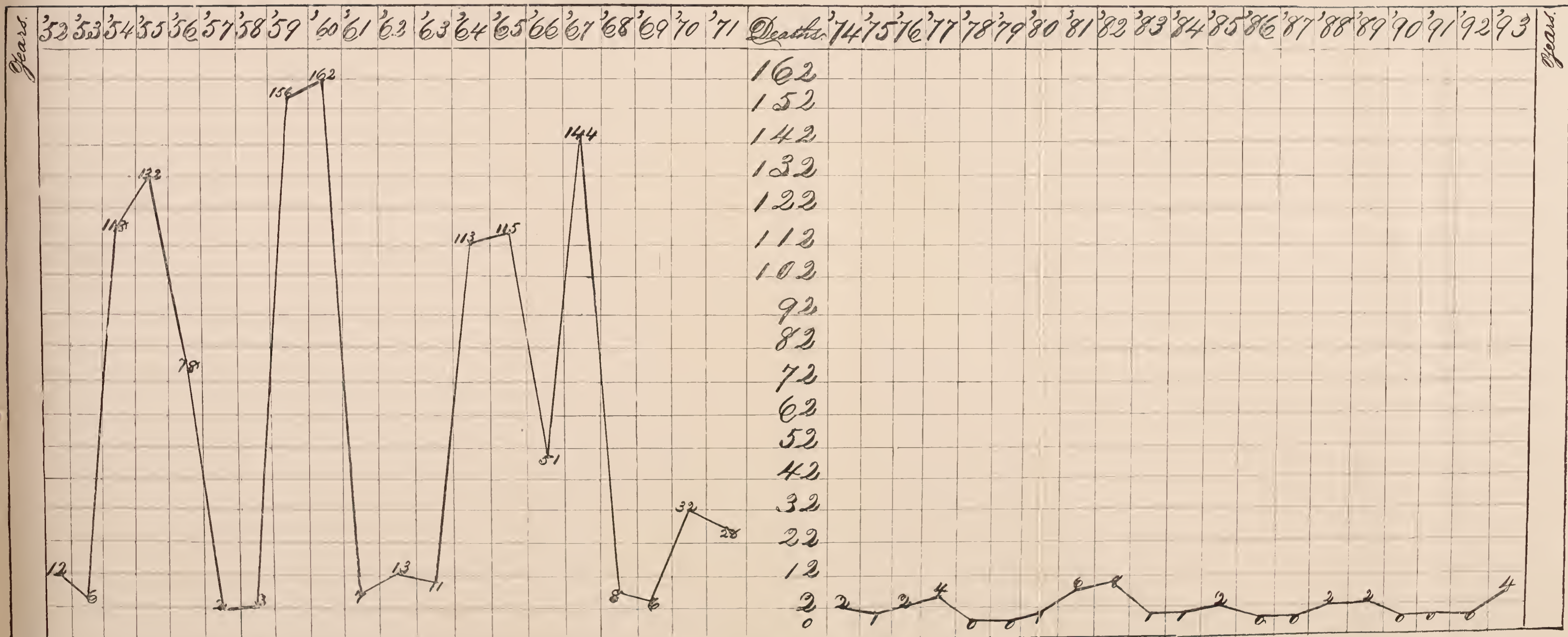
Now, as I say, sometimes we do more than this. We introduce besides this living germ which causes pus,—and I want to state as my belief here that the germ, if it be that, or what we introduce for vaccination, does not cause a formation of pus.

I do not believe that is produced by the germ introduced for vaccination. I believe that is caused by filth, and that we are reprehensible for those results.

Now I want to speak of another matter in which boards of health are interested, and it is based upon my observations. I am going to speak right out in meeting. There is a law which compels corporations to vaccinate their employees, and when a board of health notifies a corporation that they must do it, they are obliged to do it. That is, it is done by the order of the board of health directly, not as a matter of law. Now, the corporations at home vaccinate in this way: They make a contract with some doctor to come there and vaccinate the employees, and I happen to know as a matter of fact that a large number of corporations at home made a contract this year to have their employees vaccinated in their mills at four cents a head. In order to make anything out of that, the doctor must vaccinate a given number of people in a given time, and he has vaccinated from sixty to eighty people an hour, and one woman claimed she vaccinated one hundred and twenty. That means two persons vaccinated in a minute. I think such methods are reprehensible. The boards of health are established for the promotion of the health of the community, and they should see that their orders are carried out properly. I believe that they should insist upon these three points,—a clean arm, a clean operation and clean dressing. I believe it is incumbent on boards of health, when they issue these orders to the agents of corporations, to see that this is done in accordance with sound principles. That is all I have to say on this subject.

I would like to say a word about vaccination as a preventive of smallpox. Dr. McCollom spoke of the isolation of the patient in a smallpox

DEATHS FROM SMALLPOX IN BOSTON FOR FORTY YEARS — 1852-1871, AND 1874-1893.



DEATHS, 1,197; POPULATION, 187,969.

DEATHS, 36; POPULATION, 402,681.



hospital. I think, if I could have only one of the two, either isolation or vaccination, I would give up isolation and take vaccination. I believe vaccination is always cheaper than an epidemic.

I do not agree with Dr. McCollom. I think the time will come when it will be a reproach to any city to have any epidemic, and I believe that time will come when we establish a quarantine.

Dr. ABBOTT. I would like to say one word in reference to the supposed insusceptibility of certain children. I do not believe it exists. Dr. Corey has vaccinated fifty thousand children in succession, without a single break. Some of those had to be revaccinated in order to make it take, to be sure, but they all took. (See Dr. Corey's testimony in Report of British Parliamentary Commission of 1889.)

The CHAIRMAN. It seems to me that this subject is not exhausted so long as there is anything to be said concerning the repetition of vaccination, its thoroughness and the susceptibility found in different individuals. We have those here who have done a great deal of this work. I would state, as a matter of fact, we have seen one case here in Boston where vaccination had never been successful, and that person was a nurse in the smallpox hospital for nearly twenty years, and never contracted the disease. That would represent one of the extremes, and I presume there are other extremes where we might find that a person would show a susceptibility to vaccination about as often as it was applied. Has Dr. McCollom any data that he would like to give us on that point?

The CHAIRMAN. The case to which I referred, Doctor, was not a man; it happened to be a woman, in the person of Mrs. Powers.

Dr. MCCOLLOM. I do not know that I saw Mrs. Powers all the time she was there.

The CHAIRMAN. I think in her case vaccination had never succeeded, and she had never taken smallpox, although she was a very old nurse in the hospital.

Dr. DAVENPORT. Mr. Chairman: During the epidemic of 1871, when I was vaccinating for the city, one case I vaccinated where there was a scar of smallpox, and the vaccination took. As far as I could see, it was a typical take.

Dr. MCCOLLOM. We have had half a dozen cases of a second attack of smallpox. In one case a man had a third attack of smallpox and died.

Dr. DAVENPORT. And there was an infant less than one year of age who died of a second attack.

Dr. C. C. ABBOTT, of Andover. I will report one case where we had a patient who had had smallpox, and showed the characteristic pitting on the face markedly, and as all the inmates of the house were vaccinated. I vaccinated him, making two marks on the arm, and he had two typical, well-

marked vesicles. They came out, the scabs came off, and no ulceration followed, but the typical scar is very marked in his case. He had smallpox two or three years ago in some foreign country, and came here as a sailor. He said they let him go on account of the scars on his face.

The CHAIRMAN. Is there anything further to be said on this subject? If not, a motion to adjourn will be in order.

Adjourned.

# MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH.

*Organized 1890.*

[This Association as a body is not responsible for statements or opinions of any of its members.]

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VOL. IV.

September, 1894.

No. 3.

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## JULY QUARTERLY MEETING

OF THE

### Massachusetts Association of Boards of Health.

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THE quarterly meeting of the Massachusetts Association of Boards of Health was held at Gallup's Island on the afternoon of Tuesday, July 24, the President, H. P. Walcott, M.D., presiding.

THE PRESIDENT.—Gentlemen of the Association will please come to order. The records of the last meeting unfortunately are not here, so that you will have to dispense with the reading of them, at this meeting at any rate. In behalf of the Executive Committee, I will report that they have considered and respectfully present to the Association the following names for election to membership:—

W. P. BOWERS, M.D., Clinton.  
J. A. DOUGLAS, M.D., Amesbury.  
J. A. FITZHUGH, M.D., Amesbury.  
H. COOPER, Amesbury.  
E. L. WARREN, M.D., Melrose.  
E. M. PARKER, Cambridge.

CHARLES HARRIS, Cambridge.  
W. B. SMITH, Everett.  
G. W. DAVIS, Everett.  
F. J. RIPLEY, M.D., Burton.  
L. B. CLARK, M.D., Waverley.

The above-named gentlemen were then duly elected to membership in the Association.

THE PRESIDENT.—Is there any incidental business to be brought before the Association at this time? Is there any committee prepared now to report? Before proceeding with the regular business of the afternoon, which is the discussion of Tuberculosis, I would like to say that the Board of Health of Cambridge invite the Association to meet with them at the October meeting. The date will be duly announced to the Association. The regular business of the afternoon is the discussion of Tuberculosis, which will be opened by Dr. Chapin, of Springfield.

REMARKS OF W. H. CHAPIN, M.D.

*Mr. President and gentlemen*,—I suppose it is not necessary to defend before this Association the proposition that tuberculosis is an infectious disease. For that proposition we have the observations upon animals, and the question is settled forever; but it seems to me that it is necessary to discuss from time to time the question how it is infectious, to what extent it is infectious, how serious exposure to the disease will cause its development, and to discuss the various other features of the disease as they come before us.

I have for some time been collecting statistics in regard to deaths from tuberculosis in the city of Springfield, and have now a record of all the deaths from tuberculosis since 1868. It seemed to me, when I began upon the work, that, if the statistics were to be of any value whatever, it was necessary to include in the list not only those cases which were confessedly tuberculosis, but also cases which seemed to me possibly might have been tuberculosis; and therefore I included in the list practically all cases of disease of the brain occurring in children, including convulsions, spinal meningitis, and various other more or less infrequent diagnoses of brain disease, excluding those cases of convulsions which occurred in adults as being more likely to be apoplexy or uræmia. Of course, many cases of typhoid fever and pneumonia would be included in tuberculosis if we had an autopsy upon the cases; but cases of true pneumonia and typhoid fever are so common that a list which contained those would be hampered by a large amount of extraneous material, and therefore those were excluded.

Since 1868, as I say, there have occurred in Springfield about 4,800 cases of death from the diseases of which my catalogue takes notice, including all confessedly tubercular diseases, and all cases of convulsions, spinal meningitis, cerebral congestion, hydrocephalus, cerebral spinal meningitis, tubercular meningitis, brain fever, and brain disease in infants.

Now, while there were 1,196 of these cases of brain disease in children, there were only 84 cases in the twenty-five years which are said to be due to tubercular meningitis; and I want to call your attention to the probab-

ity that the diagnosis of tubercular meningitis is altogether too infrequently made. In classifying these 4,800 cases of disease, I was able to place 1,428 of them in a group by themselves,—namely, those that had relatives die of similar disease in the same period; that is, 1,428 fell into families, while in 3,372 cases no family relation could be traced. Of course, I do not mean to assume that these 3,372 cases had no tubercular relative: they simply had no tubercular relative die in the city of Springfield in the last twenty-five years.

The proportion of tubercular meningitis to other cases of brain disease was about the same in the family groups as in the other groups. There were 27 cases out of the total 346 in these tubercular families. The cases of death from brain disease occurred in certain peculiar relations to deaths from consumption. Thus 43 of the deaths (and there were in all 346 cases) occurred within one year of a death from consumption in the same family. 24 occurred within two years, 18 within three years, and so on, 12, 11, 12, 9, 5, and 5 within ten years. The descent is very even. The further away you get from deaths from consumption in the same family, the fewer cases of brain disease, so that at the tenth year there were only six cases, and after eleven only five, after the twelfth year only two cases. There was never any greater number than two after the twelfth year. 84 per cent. of all the cases of brain disease in children in tubercular families occurred within ten years, and 26 per cent. occurred less than one year from death from consumption.

Now, we know that a case of consumption of the lungs usually lasts three years at least. It is very seldom that we get a death from consumption in less than three years after its beginning; and we find that, of the deaths from diseases of the brain in young children occurring in tubercular families, 50 per cent. of all the cases occurred within three years of a death from consumption. In other words, diseases of the brain in tubercular families, such as convulsions, spinal meningitis, cerebral congestion, hydrocephalus, cerebral spinal meningitis, tubercular meningitis, brain fever, and other brain diseases in children, come just as near to a death from consumption as they can. The further away you get, the less number you have. Therefore, it seems to me that the majority of cases of brain disease in children are tubercular meningitis. Of course, where we have a case of suppurating middle ear or such a matter, it is not necessary to make a diagnosis of tuberculosis.

I have here a few family histories from which these statistics were compiled. I take, for instance, the L. family. In January, 1871, there was a death from consumption, and no more until 1879, when there was a child six months old died from marasmus; but two years later, in 1881, a person died of consumption again. The same year, two months later, another

child died of marasmus. In 1884 there was a case of convulsions. The next is another, indicating that there is a case of consumption yet to die in that family. (Laughter.)

Another family, 1882 to 1884. The first death was from scrofula, the second from consumption, and the third from tuberculosis of the brain.

Another family began in 1869, a death from meningitis in a young child. In 1873 was a death from consumption, the father; and about two months later was a death from cerebral spinal meningitis. In 1875 the mother died from consumption.

A family had in May, 1882, a death from consumption, in August a death from meningitis, a child; and in 1887, five years later, the mother died of consumption.

Another family began in 1875. They had deaths in 1875, '78, '79, and 1881. The first was from hydrocephalus, the next from convulsions. The third was an uncle of the preceding two, and he died from consumption. The fourth was an aunt, and she died from consumption. The fifth was a child, and died from meningitis about four months later than the last case of consumption. They inherited their tuberculosis from the aunt who lived in the family. The mother and father are still living, and are not tuberculous.

Another family had a case of consumption in 1873, in 1891 another case of consumption, and the same year one from brain fever. The next year, in 1892, the father died from consumption.

Another family, in 1878, 1879, 1880, and 1883, had deaths as follows: the first from consumption, the second from tubercular meningitis, the third from consumption, and the fourth from convulsions. They evidently had changed doctors. (Laughter.)

Another family in 1871 had a death from consumption. That was the grandfather. In 1876 there was a case of death from convulsions, a child only one year old died five years later than the grandfather did. It may have inherited convulsions from the grandfather, but just two months later the father died from consumption.

Here is a case where three adults died, two in 1879. Both of them died from consumption. In 1885 an adult died of acute meningitis. I suppose it was a case of tubercular meningitis.

Here is a case of convulsions in 1871, and then in the four years from 1876 to 1880 they have three deaths from tuberculosis.

Another family began in 1870. In March, 1870, there was a child three years old who died of meningitis, in 1871 another one, two months old, died of cerebral congestion, and July, 1873, one died of cerebral spinal meningitis. While those cases were going on, the father was actually tubercular; but he afterwards recovered.

Here is a curious instance of inheritance from a father's first wife. (Laughter.) She died long before tuberculosis appeared, Sept. 20, 1861, of consumption. She left one child. There was no more of that family who died until the twenty-fourth day of July, 1880, nearly twenty years later. At that time a child one year and ten months old died of meningitis. This was the child of the second wife. Next, a year later, the child of the first wife died from consumption; and there is where the inheritance came in. The first wife died of consumption; but she left a tubercular child who survived her twenty years. On the 27th of October, 1881, the same month, the grandmother of the family died from marasmus. In October, 1882, the next year, a child of the second wife died sixteen years old from consumption. The next year, 1883, a child of the second wife died of convulsions. There was a rest then of five years, and then a young woman died of inanition, and was insured in a so-called industrial insurance company. (Laughter.) In March, 1892, the last one of them died, about nineteen years of age, from consumption. The father of all this family is hale and hearty, and not tubercular, as far as I can see.

Here is a family which lost four members in one year and six months. On the 18th of February, 1884, one died, three years of age, of cerebral effusion. On August 7, the same year, one died of meningitis at the age of eleven years. On Sept. 1, 1885, one died, aged thirty-seven, from consumption. She was the mother; and on Nov. 1, 1885, the same year, two months later, a child three years and four months old died of meningitis. In that instance the case of consumption occupied the middle position, and cases of brain disease the others. Tuberculosis was not diagnosticated, although the woman must have been tubercular all the time. I have seen members of the family since; and they assured me the mother had tuberculosis, lasting about four years.

Here is a case where three members died. One died in January, 1879, from convulsions. One died in January, 1880, eight years of age, of meningitis; and another Aug. 1, 1880. The mother, thirty-seven years of age, died of consumption.

Here is a family that began in 1875. One died in 1879, Nov. 16, of convulsions; another on April 7, 1885, of meningitis; and then four cases of consumption, 1885, 1888, and 1889.

Here is a case Aug. 13, 1882, where a child two years of age died of convulsions. May 1, 1885, an infant two months old died of exhaustion. Sept. 28, 1885, a child four years old died of convulsions. April 30, 1886, a child two years and two months old died of marasmus. No more about that family except last year I was called in to see the people, and found that they had three surviving children, all in good health,—the father and mother in perfect health. I was asked to examine the mother's lungs, and

I found signs of healed tubercular cavities. While these children were dying of various convulsive disorders, she was then coughing and spitting about the house. It seemed to me then that our statistics of tuberculosis should include almost all cases of brain disorder in children; that, when as physicians we meet a case of brain disorder in a child, we should think of tuberculosis. And in the two histories that I have read the physical records show us that, unless there is a person in the family who is actually tubercular (I mean by that excreting tubercular pus), the children do not inherit it from their parents; and, if there is that condition of things, then children do inherit it.

That, of course, is true more distinctly of those people who are not scrupulous about household cleanliness. We do not find in our town that tuberculosis is very prevalent in our better wards. Where people have the instinct of cleanliness and the ability to care for themselves, the deaths from tuberculosis are very few, and, when tuberculosis strikes a family, it is a cause of comment; but in the lower ranks of life in our tenement houses, where the people do not have carpets, and where they think spitting upon the floor is not objectionable, provided it is rubbed around a little, there the death-rate from consumption is excessive, the death-rate from meningitis is perfectly appalling.

In a former talk to this Association at Springfield, where there were but few present, I had prepared a map showing the location of deaths from consumption in the city, and that, if I had it here, would show you more clearly than anything that I can say that the districts where the houses are new, and the people well-to-do, have less of consumption, while in those districts where the houses are old and the people poor there the disease is rampant. There is where our scarlet fever and diphtheria flourish; there is where tuberculosis flourishes, and wherever you find one of them you find the other. In those old houses the floor and walls are reeking with it. (Applause.)

THE PRESIDENT.—Dr. Ernst has kindly consented to be with us, and we will have the pleasure of hearing from him. (Applause.)

#### REMARKS OF H. C. ERNST, M.D.

*Mr. Chairman and Gentlemen*,—It is perfectly true that I consented to come; but I thought I was invited to something that would be delightful to me, and it was not until within a day or two that I realized I was expected to speak to this Association. Therefore, I have no prepared paper to read to you; but there are some points that I may perhaps bring out from the scientific side that will be of interest.

Of course, as Dr. Chapin has said, it is not necessary to emphasize to-day

the infectious nature of tuberculosis, and neither is it necessary to state why it is especially an appropriate subject for discussion before an assembly of members of boards of health. Its very wide prevalence is one reason why it is to be taken cognizance of in this way; and, while I am not one of those who believe in its hereditary nature, nevertheless the wide-spread scattering of infectious material, and the characteristics that are attached to that infectious material, account to my mind perfectly for the number of cases that occur in the same family, or in the families of the same neighborhood, and especially in the families that live under poor hygienic conditions.

The characteristics of the bacillus of tuberculosis are somewhat different from those that are attached to the other bacteria producing infectious diseases, and require a knowledge which is different in order to intelligently handle it; and perhaps the most marked of these characteristics is the extreme resistance of this organism to destructive agencies. I do not think any better illustration of that can be given than to speak of certain experiments that were made by Dr. Stone, one of my assistants at the medical school, who, when he was a student, was studying certain samples of tuberculous sputum. The jars containing that sputum were allowed to stand for a long time. They were simply left in the laboratory; and some three years, almost four years, afterwards they turned up. Of course, the sputum had dried almost to the hardness of stone; but, by softening them with sterilized water and making inoculations with these specimens, it was shown that the bacillus of tuberculosis had retained its vitality during that great length of time, and therefore drying all this length of time had no complete destructive effect. Of course, I do not mean to say a number of bacteria had not been destroyed, but there were enough there to be evident under the microscope, and to be evident upon inoculation in the lower animals sufficiently to be productive of tuberculosis; and it seemed to me that that was a very instructive thing, and, if it were more widely known, would lead to more attention being paid to this very admirable circular of the State Board of Health, and the precautions that are suggested in this little paper that is issued by the State Board of Health. What can be said in regard to the precautions to be taken against the spread of tuberculosis is practically contained in these few clauses.

There is no question at all but that by far the most general source of infection of this disease is the expectoration from persons affected with pulmonary tuberculosis. Any one who has given the slightest attention to that knows of course that the sputum is scattered about in the streets, is scattered about more or less upon the floors of tenements, and also sometimes upon floors that are not by any means in tenements.

Dr. Chapin spoke about the lower classes spitting upon the floor. It

was my fortune some years ago to call upon the head of one of the largest departments of the United States Government in Washington, in his magnificent office in one of the largest public buildings, a room that must have been forty feet square at least; and, while I was there, he frequently expectorated upon the rug.

DR. CHAPIN,—He was one of the lower classes.

DR. ERNST,—Very true; but it is not always in tenements that that occurs. It was one of the most disgusting exhibitions I ever saw. I thought of the representatives of foreign governments calling upon him and being received in that way. But the tubercular sputum is a source of infection, *the source par excellence*, beyond anything else, I believe. Of course, in a less degree it is very probable that, especially in the case of children, milk from tuberculous animals or tuberculous mothers is also a source of infection; but that is nothing at all to be compared with the careless spreading about of this expectoration as a source of this disease. Therefore, as I say, the care of this expectoration is the one thing that should be emphasized upon all of the laity, in order to prevent the spread of pulmonary tuberculosis, tubercular meningitis, or other forms of the disease.

The method by which that should be handled is spoken of here. Perhaps as easy a way as possible to destroy the sputum is to receive it upon paper, or, if the patients can secure them, in paper sputa cups, which will answer the purpose, and which can be obtained at a nominal cost, and to have these burned. Burning, of course, is a better method of destruction than boiling the handkerchiefs or other materials upon which this expectoration may be received; and therefore, if it be possible, I should advocate that method of destroying the sputum rather than boiling, and the exercise of a good deal of effort in order to secure that end, if it be a possible one.

Another point which has seemed to me to be a matter of a good deal of importance, and which I am very glad to have the opportunity to emphasize, is in relation to a microscopical examination for the diagnosis of the existence of the disease. As of course you all know, it is recognized to-day that the bacillus of tuberculosis may be found in the sputum before the physical signs of tuberculosis appear in a destructive process of the lungs. Now, it is exceedingly important that the method by which that diagnosis is made should be the proper one. I think it is unquestionable that what has been always heretofore spoken of as the pre-tubercular state in pulmonary tuberculosis is simply the time from the actual attack of the lung by the bacilli of tuberculosis until the time of the appearance of the physical signs in sufficiently extensive quantity to enable the ordinary examiner to make the diagnosis. Now, that is the important and critical time for the patient; and, if the diagnosis be made, and measures of climatic or other treatment be adopted, it will give a very possible, if not a probable, favorable result to

cases thus treated. Of that I am very certain. But, unless the proper method of microscopical examination be used, the diagnosis may be delayed anywhere from two to three or four weeks, because you all know that, if one examination of the sputum is made and that is negative, you do not make another for some time afterwards. From my experience, and that of gentlemen who are working with me, I should urge the twenty-four hour method, so called. It appears to take a little longer time; but it is a matter that seems to me ought to be emphasized in season and out of season that that is the proper method, and that no other is justifiable. It is, of course, justifiable to use one or two of the so-called shorter methods, and to be satisfied with those if you find the bacilli under the microscope at the first examination; but, if the result is negative, then you are not justified in concluding that tuberculosis is not present, and, in order to be so justified, you must use the longer and perhaps the slower method. That is a point I emphasize every chance I get; and, as you see, I have taken opportunity to do so here. I think it ought to be spoken of much more widely. So much for the practical part of the prevention.

I might occupy a long time in speaking of the theoretical part of what has been done, and what may be done, and what, it seems to me, it is safe to hope for. It is not necessary, of course, to speak of the rise and fall of tuberculine. Tuberculine was heralded as a panacea for tuberculosis, very foolishly as we all know now,—not only so, but more was claimed for it by those who did not know, than by those who did. Of course, in such a wide-spread disease the suggestion that there was a cure for it met with the most tremendous applause and wildest enthusiasm; but equally, of course, it was at the time, and always will be, absolutely impossible to produce anything that will ever reconstruct any part of the human body after it is destroyed, and much less such delicate tissue as the lung tissue. Therefore, in the first place, tuberculine was not given a fair chance for the reason that it was employed in the very large majority of cases after the disease had advanced too far for anything to do any special good; but in the second place, as you know, it has been used clinically at different times in this country. It is used by Trudeau; and within a year one of the prominent men in the West has said—I do not feel authorized to use his name, but this statement I understood him to make in Washington—that he uses it constantly in human beings, and, if he can secure his cases early enough, he makes the claim that he is successful in curing the majority of those cases. That, of course, I should pay very little attention to, excepting he is a man who has very good standing. It is constantly used abroad, as a recent report shows, and with very favorable results. But, as a matter of practical use, it has not been much employed clinically in this country until quite recently in the diagnosis of tuberculosis in cattle.

I had the pleasure of attending a meeting of the Massachusetts Veterinary Association some two months ago; and I confess I was not only surprised, but delighted to be present at such a meeting. The surprise part of it was to hear the absolutely unanimous statement in favor of tuberculine as a diagnostic agent of tuberculosis in cattle. Apparently it never fails. The properly prepared material will detect tuberculosis in its absolute inception. The only complaint that I ever heard of it among veterinarians is made jokingly, that it makes the diagnosis too early: they are induced to kill cattle before they are generally affected with tuberculosis, before they can do any harm. Of course, I do not agree with this. I do not think you can kill a tuberculous cow too soon. Tuberculine is an exceedingly delicate agent; and the fact that it is a diagnostic agent in cattle — contrasted with the fact that, so far as we can see, a large number of persons having tried it, it is not diagnostic as used in human beings — has suggested a speculation to me, which is an exceedingly interesting one, and with which I shall close what I have to say. I hope you will remember that it is purely a speculation, and that I have no special ground upon which to base it.

This fact of the contrast in its action in cattle and in man has led me to wonder, in connection with certain results that have been obtained by French observers, whether, after all, we have not to begin over again the old discussion as to the identity of tuberculosis in human beings with tuberculosis in the lower animals. The difference between the action of bacteria is influenced by such exceedingly slight, or apparently slight to our coarse perception, surroundings that it seems to me that it is possible this may have something behind it. The tuberculine which was sold and which is used comes in almost every instance from the bacilli of tuberculosis that are obtained from the lower animals, and not human beings. Therefore, we have this fact that seems to be demonstrated all over the world, that tuberculine used in cattle gives a perfect diagnostic agent; and whether it is a curative agent or not veterinarians have not yet told us. On the other hand, it does not have any effect in human beings apparently as a diagnostic agency. It is entirely uncertain. One says it will react, and another says it won't.

Now, certain French observers have demonstrated very conclusively very marked differences in the cultures of the bacilli of tuberculosis coming from different races of animals. They are apparently identical, and absolutely the same under the microscope, and yet one will kill out the other entirely. There is a radical difference between them that our means of observation has not yet enabled us to determine. Now, this is an exceedingly important point, and leads to the question whether, after all, instead of condemning tuberculine entirely, as the general medical profession has done, it may not be that we have all been on a false scent all this time, and

whether in using tuberculine we should not have been careful to see that the bacilli from which it came were derived from human beings, and not from the medium of the lower animals. (Applause.)

THE PRESIDENT.—There is another gentleman whom we welcome among us to-day, and I have the pleasure of introducing Dr. Vickery, of Boston.

REMARKS OF H. F. VICKERY, M.D.

*Mr. President and Gentlemen,*—Before I say anything upon this subject, I would like to express my satisfaction in being present here, and in having my enthusiasm stimulated by seeing so many men who are exerting themselves disinterestedly for the good of the State. It is a privilege to me, and I want to express as well as I can the esteem and respect that I have for this body to whose meeting I am invited.

The present awakening about tuberculosis is a matter in which I am deeply interested, and which fills me with a great deal of enthusiasm. Tuberculosis being so fatal a disease, and causing among the more unfortunate classes of humanity so great misery, it is a very welcome thought that we are on the threshold of a great diminution in the scourge, which it is; and I, for one, cherish the hope that the work which is being begun in this direction will, in the course of the next two or three generations, very greatly diminish the prevalence of tuberculosis. At present we are obliged to confess that, so far as the individual is concerned, the prophylaxis of tuberculosis lies in the maintenance of the individual health, the robustness of the constitution being preserved, in order that the ubiquitous germ of tuberculosis may not be allowed to grow when it enters the system; but, if what we now believe is true, and the efforts which we are to encourage are carried out persistently for a few generations, this omnipresent germ will no longer be ready to enter every weak human system, and the results of what we do now will be increasing in a geometrical ratio, not only for ten years or for twenty, but for fifty.

I once heard Sir Lyon Playfair say that one might sum up the theory of the public care of the health in what was said to the leper when he was told to wash and be clean, and the facts that come out about the tubercular bacillus illustrate again the truth of what Playfair said long before they were published.

One objection, which is commonly made to the efforts which I believe should be extended, is that we shall cause alarm in the community. Now, needless alarm should be deprecated; but, if we can throttle a disease which is killing from a seventh to a fifth of all who die, is it not well to excite the apprehensions of the public? I should be glad to do it every-

where I could. Abernethy left behind him a great reputation for his ability to manage his patients; and it was said of him that the two factors which he used were fear and encouragement, and that is precisely what we can use. If we held up the terror, and gave no hope of escape, we might be doing wrong; but in the terror lies safety, and that is what makes me feel that we are entirely justified in publishing these facts with considerable earnestness and rapidity.

As Dr. Chapin was speaking, there came to my mind a young girl to whom I was called as she was dying of tuberculosis. She was one of eight sisters, six of whom had already died of that disease. A year later the eighth sister, the seventh having meanwhile died, came to me with rapid tuberculosis already existing in the lungs; and at home in Nova Scotia was a father who had coughed all his life, and for all I know may be coughing now. He had begotten and killed his offspring.

I meant to find the exact reference to a letter that I read in the *Lancet* in the spring of this year. It can be easily found. A British physician had a family who, not being tuberculous, had moved into a house which had previously been occupied by persons who had consumption; and this new family developed the disease. He investigated the condition of the house. In one specimen, which he obtained from the top of the dining-room door, there were three colonies of tubercle bacilli.

From a purely scientific point of view I believe that what Dr. Ernst has said about the microscopic diagnosis of tubercular bacilli in sputum is correct, but my actual experience is that in almost every case where I examine the sputum I can either find the bacillus in the course of ten minutes from the time I begin or else I cannot find it ever.

Now, in an important case, a doubtful case, I should certainly resort to the long method of examination. That is twenty-four hours; but, frequently of late, I have had patients come from distant places to my office, heard their history, examined the chest, had them cough (perhaps incidentally) while they were there, and spit into a sterilized vessel, and made the diagnosis of tubercle bacilli, actually seen the bacilli, and all in the course of not a long office visit. Now, a method which is capable of reaching a practical and positive result in ten minutes is worth learning. It is easier for me to use that first, and then, if I fail, to go on to the other, than it is invariably to use the other; and it is a great deal of satisfaction to the patients who come from a distance to me, whom I never see again, and who want to know while they are there what my opinion is. So I shall not abandon that method, although, as I say, I agree from a purely scientific and accurate point of view with what has been said. That covers everything that I have to say. (Applause.)

THE PRESIDENT.—The subject is now open for general discussion; and I shall take the liberty of asking, among others, Dr. Norton, of Everett, to say something to us on the subject.

REMARKS OF J. S. NORTON, M.D.

*Mr. President and Members of the Association*,—I have the pleasure of living in one of the most rapidly growing cities in the Commonwealth. The population has recently doubled during one period of five years, so you see that the houses must necessarily be mostly new houses; and at the end of last year it occurred to me that perhaps tuberculosis did not breed in those new houses. Therefore, I looked over the figures; and, as I have a copy of our report, I will take just a minute, and read a few words:—

“Our death-rate from tubercular diseases (including consumption) was 2.18 per thousand in 1893. The previous year it was 2.53 per thousand. Boston’s rate for that year (1892) was 3.98 per thousand. Since we cannot tell whether a physician giving ‘tuberculosis’ as the cause of a death means tuberculosis of the lungs or the disease in some other form, we have taken the total deaths from all tubercular diseases in computing the above rates. If we consider only those returned as due to ‘phthisis’ in both cities, we find the rate in Everett for the year 1892 was 2.13 per thousand, while in Boston it was 3.01. For 1893 in Everett the rate was only 1.62 per thousand.”

Now, of course, I wrote that for popular instruction of as many citizens as might happen to read it, using the word “consumption” in the way it is generally taken, meaning consumption of the lungs. I did not, in making the figures, include convulsions, as Dr. Chapin has done, for this reason: that in the summer months in Everett we have a number of cases of deaths where the return is made “convulsions.” I have had occasion to see some of those children before they died, and heard the history from the parents; and it was my private opinion that some of those that were returned as convulsions were cases of cholera infantum, and possibly some physicians not liking to acknowledge the loss of cases of cholera infantum had called it convulsions.

A great many of the cases of consumption that died in Everett, to my personal knowledge, acquired the disease before they came to Everett. They came to Everett coughing, and would give a history of being sick when they came to the city. About a month ago a case came that in all probability acquired the disease in Boston, and I sent her back to Boston. (Laughter.)

I have now under way some circulars that I am going to send to the different physicians in Everett, and possibly undertakers, and get as complete a history as I possibly can of cases of tuberculosis, *to see if almost*

every case did not originate out of town. (Renewed laughter.) Perhaps I cannot send them all back to Boston, if they did originate in Boston; but it will be interesting to me, and I have no doubt it will be interesting to all the gentlemen, if I find that in a city where nearly all the houses have been built within a few years almost no cases of tuberculosis started in those new houses.

We also have begun recently, at the request of one or two of the physicians there, to fumigate with sulphur houses where a member of the family has died or is sick with tuberculosis. I do not know how much good that is going to accomplish, but at the request of one or two of the physicians we have begun to do it. Whether the sulphur fumigation will have much effect on the bacilli of tuberculosis I do not know. Perhaps that question I will leave open to some one here who is better informed; and next year or possibly at the next meeting, after I have a few more figures from the doctors in response to the circulars that I intend to send out in reference to where the sick ones acquired or are supposed to have acquired the disease, I may have something further to say in reference to the matter. (Applause.)

THE PRESIDENT.—Dr. Sawyer, I would like to hear something from you on this subject. (Applause.)

#### REMARKS OF E. A. SAWYER, M.D.

*Mr. President and Gentlemen*,—Although I am very much interested in this subject, and have been much interested indeed, I have prepared nothing to bring before you to-day. I think the subject is a very important one, and well worth the consideration of this body,—not only of our consideration, but some action possibly should be taken in regard to the matter.

When I was in college, I was quite a frequent visitor at the home of Dr. Alfred Loomis, of New York, who, as he was quite a friend of my father, a physician, took some interest in me; and we had some interesting discussions together. He at one time made the remark to me that, as progressed in the practice of medicine, I would find that consumption was contagious and infectious. I think at the time I paid very little attention to the statement; but soon after I began practising medicine I was called into a family where a member of it had died recently from consumption, and another member was in the first stages. After making some attempts to stop the progress of the disease, I called in another practitioner who had been in the practice of medicine some thirty-five years; and, after examining the case with me, he informed me that he had had a case a few years previously die of consumption in the same house, and also said to me that con-

sumption was contagious. I then became still more interested in the matter, and investigated quite carefully the history of the house, and found that this patient of the older practitioner whom I called in was sick in the same room in which this one was sick upon whom I was attending; and that the patient who previously occupied this room, in spite of all the other physician could do, would expectorate upon the floor, chairs, or anywhere that happened to be convenient. This was some twelve years ago; and at that time I had the room thoroughly fumigated with sulphur and disinfected with bi-chloride, and have kept track of the house since then. The former buyer moved out, although the patient died; but since that time there has never been another case of consumption in the house.

I hardly think this would be an answer to the question of the gentleman from Everett, but it is simply an experience I had, and caused my youthful mind to become thoroughly impressed with what the older physicians told me about the contagiousness of consumption. And from that time up to the present I have thoroughly believed that it is so.

I could mention several other instances where I have had personal observation of the fact of the contagiousness of this disease; and I also believe that there is a considerable connection between consumption and meningeal troubles, as has been so ably spoken of by Dr. Chapin, and that, as we lessen the vigor of consumption in its progress, so we shall also lessen meningeal troubles in children. We have had quite a good many that I have followed the history of come into our place coughing; but we could not readily send them back to the place where they came from, and so I, with the assistance of my other colleagues, have put them where they are still coffin. (Applause.)

THE PRESIDENT.—Gentlemen, we are prepared to hear any volunteers upon this matter. Certainly, every man here has had some useful experience with this most fatal disease that boards of health have to deal with, and I hope we shall hear from a number of gentlemen.

#### REMARKS OF J. A. GAGE, A.M., M.D.

*Mr. President*,—One point suggested by Dr. Chapin in regard to incorrect diagnoses I quite agree with. I remember a child dying from tubercular meningitis contracted from cow's milk, where one of the older physicians, a skilful diagnostician, thought it something else; and quite recently I have seen a diagnosis of syphilis made, where the whole history of the family and the child was tuberculous, and where the child died, I believe, from tuberculosis, so that I quite agree with Dr. Chapin that the diagnosis is often incorrectly made. While coming down in the boat to-day, I was led

to say, in conversation, that I should be very glad to indorse every word that Dr. Ernst might say in regard to tuberculosis; and yet I find in my mind one doubt, and I am sure he will accept the statement from one who is always ready to learn from him. Dr. Chapin said that children only "inherited" the disease when tubercular pus was being excreted in the house, and Dr. Ernst said that he did not believe it was inherited. I have in mind the history of one family where the grandmother was tuberculous (she is sixty-five or sixty-six years of age), and has been tuberculous ever since I knew her; and, of three children, I know that two of them are tuberculous. One, the mother, has signs of solidification in one lung; but she has never had any very active symptoms of the disease. She has never had a continuous cough or expectoration, to my knowledge, and always has enjoyed good health; that is, has always been able to do her work, and has been under my observation ever since she was a child. Her husband also has a good history, and no signs of tuberculosis. The family that I speak of—that is, the mother of the child and the father—after marriage, before this child was born, moved into a new house, and furnished it anew. I delivered the mother of the male child in question. The mother does not expectorate, and particularly during this period she had no signs referable to the lungs. The family lived by themselves. Within four or five months that child developed one lung with signs of solidification, and, although recovering from the attack, has had ever since what we call *râles* present, and signs of solidification there still, with general wasting. I thoroughly believe it is tuberculosis. I have no reason to doubt it. I might also say the other child has lung signs.

The question has come to my mind, Is not this disease sometimes inherited? And what has led me to it has been the observation of a number of cases of this kind where the disease has appeared very early in children where, so far as I could find out, there was no active excretion of pus going on, as Dr. Chapin has said. I speak of this more particularly now because it seems well to have this point of view before our minds while we are considering (what I believe to be true) that infection and often secondary infection are *par excellence* the methods of propagation of the disease; and it seems to me it is wise not to lose sight of the fact that it may be inherited, and I believe it is not scientifically disputed in relation to this point.

I have a patient in mind now who has solidification of one lung, and a tuberculosis nodule on one cheek (removed), afterwards tuberculosis of scapula; and she is now under treatment for lupus of the lips and nose. That patient has tuberculosis in her body; and, if she became a mother, she could, I believe, transmit those germs to the child she was carrying.

I merely offer this suggestion, and I will say I am taking very careful

notice of my new-born babies for the purpose of finding any indications of tuberculosis during the first month of life.

There is one other point I wish to speak of, which is of interest to boards of health, that was suggested by Dr. Vickery's remark, whether it was not advisable to create what is called a "needless" alarm among the people. The grandmother I have just spoken of, the woman who is living at sixty-five years of age, has been tuberculous, to my knowledge, at least twenty years, and I have no doubt has been the greater part of her life.

I have under my observation children of all ages, from eight or ten years to twenty odd, that have signs of tuberculosis. They have signs of solidification of one lung. Those children are healthy and active children; they are ruddy-cheeked; they are full of life and activity, and take an active part in the life that all children take part in. Now, how are we going to deal with such people who are tuberculous, but who are active in regard to prevention? If I go to those children or their parents, and particularly the older children that are eighteen or twenty years old, and say: "You are tuberculous and have consumption. You are liable to transmit that to others," it seems to me that, with the great prevalence of this disease, it is a terrible statement to make to an individual. They cannot see the scientific side of it and the possibility of it that the doctor can, and it puts a blight upon their lives.

Now, I am as strenuous as any one in enforcing sanitary laws, in doing all we can to improve the condition of the community; but I think we have got to consider very carefully how far we should go with these patients. I have no doubt some of these are going to have children, and die of old age; and how far are we going to hold over them that statement that they have consumption? And yet these children, when they catch cold, as they call it, have a high fever, with loss of appetite, go to bed, lose flesh, and have all the signs of something more than a common cold; and at such times they expectorate a little. Then I always look out for that expectoration, if I am the doctor; but I cannot tell those young people that they have consumption. It seems to me it is a tremendous blight to put upon the lives of young people who are full of hope, and have no practical knowledge that they are sick.

I was very glad in reading the discussion on the question as to how far boards of health should go in this matter to see that particularly in Philadelphia and in Boston they were conservative. It seems to me that in New York they have gone too far; and I hope that what measures are taken will be taken not only with reference to the protection of the community, but with proper regard for the individual life we are affecting.

THE PRESIDENT.—Is there anything else to be said upon this subject? If not, probably Dr. Chapin will have something to say in closing the discussion.

DR. CHAPIN.—I have not anything to say in general, but I would like to say something about the cruelty of telling a person who is tubercular that he is tubercular. I speak with some feeling on the subject, because my father and grandfather and five aunts died from consumption (laughter), and I am one who inherits consumption. From my youth it had been told me: "You have it. You can't help it. Your father had it. Your grandfather had it. Look at your aunt's case; and what is to be done with you?" There was no hope until a few years ago somebody said tuberculosis was infectious; and then, if infectious, you have got to catch it. I began to ask myself: "Have you got it? Why, no, I have not got it. Is there anybody living now in your family who has it? No, they are all dead; and I can't get it." (Applause.) And I say, if you can go to a family, and say, "Although one person has it, the rest of you can escape it," that is good for the family.

DR. ERNST.—Mr. President, one word about my belief that the disease is not hereditary. Of course, it is a possibility that a very tuberculous mother may transmit tuberculosis through the placenta; but I am firm in the belief that otherwise the occurrence of tuberculosis by means of heredity is exceedingly rare, if it ever occurs. When I was a student, I was taught that all chronic destructive processes of the lungs were not tuberculosis, but were chronic catarrhal pneumonia. Very soon after the discovery of the bacillus of tuberculosis the term "chronic catarrhal pneumonia" died out entirely. I think Dr. Vickery will bear me out in the assertion that it is coming into very general use again, or any of the other physicians at the Massachusetts General Hospital, of whom I am one. I think their experience at the Massachusetts Hospital must be about the same as mine, and must recognize the existence of a considerable number of cases of solidification in which probably destructive processes are going on in the lungs that are not tubercular at all. Is not that right?

DR. VICKERY.—Yes, sir.

DR. ERNST.—They do not go on to a fatal result. Now, that is the point. We are discussing this question from a scientific point of view. These cases may be what is called tuberculous, but they are not tuberculosis; and I think that is a distinction that should be borne in mind, and I am speaking of tuberculosis and the bacilli of tuberculosis not being hereditary, and not being propagated by heredity.

DR. VICKERY.—If a man's house has caught fire, for heaven's sake tell him before it is burned down; and, if there is only one member of the family sick and the others can be saved, let them know it. To be fore-

warned is to be forearmed. If there is one sick, and it is evident that the others will inevitably get the disease and die, I think perhaps it would be cruel to tell them that they are going to catch it; but, as long as there is hope for them, then the question is whether it is not kinder and better to let them know.

DR. ERNST.—There is one further point in regard to what Dr. Gage said, that we do not acknowledge in the examination of any patient or any material the existence of tuberculosis unless we find the bacilli. It is very common, in speaking of tuberculous cases, to speak of them all as tuberculosis; and, so far as we have been able to find out, they have no evidence of tuberculosis. The scientific evidence is the discovery of the bacilli, and nothing else. In speaking on a question like this, we must stick closely to scientific exactness; and I believe that in all cases where evidence of tuberculosis is sought we must make a microscopical examination first and foremost and always. Then we may draw any conclusions in regard to it which such an examination seems to warrant.

DR. GAGE.—I can merely say that, of course, these cases have not all been scientifically determined. I recognize in the case of children where you do not get expectoration it is very difficult; and my experience has been that quite a large number of my patients with lung symptoms, with unmistakable signs of solidification of the apices, do not expectorate. I would like to ask Dr. Vickery what he would do if he was called to a family where three children out of four had signs of solidification at an apex, and were disposed to "catch cold" easily, but who, in other respects, were healthy, and leading active lives. They are not expectorating tuberculous pus, and are not aware that they are diseased. Would he tell those who were ignorant of any sickness that they had a life-long disease? What would he feel was his duty in such a case?

DR. VICKERY.—Well, my custom is to be very frank, and tell the family my diagnosis and the means that should be taken to endeavor to cure the disease and prevent its spread; and I assure them, believing it myself, that it is a curable disease, that the old view of its incurability dates from a time when the diagnosis could not be made so early, and that, if the individual who is diseased is careful about the sputum, in case he gets better he will avoid reinfection from his own sputum. Here is a man who has just had the disease. Perhaps he has killed out that lot of germs which had got into him, and at that minute he has breathed in some more, and he is in a state to make a second colony settle. I tell him and his family, and I do not find that they feel badly about it. Some of them have thanked me with tears in their eyes, and one said, "Doctor, if only I had learned this a year ago, I would have acted very differently." They do not seem despondent, if it is told them with sympathy and kindness; and then, if it

were going to save ninety-nine, and one single man had his feelings hurt, as I say, I would not hesitate.

#### REMARKS OF S. W. ABBOTT, M.D.

I have here some circulars upon tuberculosis that have been referred to, for the benefit of physicians and boards of health generally, and a smaller card which should be put into families where there is consumption. Dr. Chapin's remarks are very important in reference to the method in which he has conducted his examination. That is to say, a physician who has been brought up in a community has a knowledge of all the families and their history, and can make observations and an exact record of them extending over a long period of time. I trust that these observations may be continued, because they certainly have a great deal of value in settling some of the doubtful points relating to tuberculosis in families.

Some remarks have been made concerning the city of Boston and its death-rate as compared with that of other cities. Certain considerations ought to be kept in mind in regard to the character of the population as to its effect upon the death-rate. I have made a study of all the cities and towns in this State, and published the results a year or two ago; and some of these points were brought out there, giving the reason why certain cities had a high death-rate from certain diseases. Boston stands at the head of all the cities in its death-rate from consumption, Holyoke, Lawrence, and Lowell in typhoid fever, Holyoke in small-pox, and Fall River in cholera infantum.\* Now, there are definite reasons for these high death-rates from special causes. Boston has within its limits a large number of institutions to which people come and die who are not residents of Boston, and their deaths are credited to its death-rate for phthisis. There are quite a number of hospitals in Boston where people occasionally die of consumption, who, perhaps, are not admitted as suffering with that disease; and there are other institutions which are specially devoted to it, such as the House of the Good Samaritan, the Channing Home, St. Elizabeth's Hospital, Dr. Cullis's Home, and the Carney Hospital, all of which admit consumptives. Then there are other conditions in the city favorable to tuberculosis. There is a very large tenement-house population in Boston. The city of Newton, on the other hand, is the very lowest among the cities in its general death-rate, 13 or 14, where Boston has 23 or 24. Then, too, the population of Newton is very different from that of Boston. It has mostly a wealthy population, with comparatively very few poor and very few who live in tenement houses,—a very small manufacturing population as compared with that of other places. All these things influence the death-rate

\* See Twenty-third Annual Report of State Board of Health, 1891, p. 759, etc.

in cities. In Fall River there is a large number of mill families who work in the mills; and there you have a death rate from cholera infantum 50 per cent. higher than that of Boston from the same cause, because the mothers of infants practise early weaning, so as to allow the mothers to resume work in the mills.

Now, the city of Everett, as we know, has an entirely different population from that of Boston. It is a residential place, with almost no manufacturing there, and a new class of houses that must have, as Dr. Norton has stated, a definite influence, while the old houses would be more likely to favor the retention of the infectious material of consumption.

Then there is another point worthy of mention, and that is the construction of the house itself. I do not mean the walls, but the floor. The floor of a house is the part where the sputa lodge, if they lodge anywhere, since many people spit upon the floor. Now, with a hard floor, with tight joints, well polished and clean, consumption is far less likely to appear in that house than it is in one having old rickety floors, with wide, open joints, and a floor that has been worn out and battered to pieces, which is far more likely to retain consumptive sputa.

There is another practice (which has been proposed in some places), and that is the quarantining of consumptives. It seems to me that is going too far. If you quarantine all consumptives, you must quarantine a large part of the population,— so large, in fact, that it would be impracticable.

DR. NORTON.— I would like to call the attention of the gentlemen present to how easy it is to get a diagnosis when we are a little bit lazy or for any other reason we do not feel confident that our physical examinations give us sufficient data. I get in Boston a wooden bottle (mailing case) and a glass inside bottle having a wide mouth, which I give to a patient to expectorate into; and then I mail the bottle to Dr. Stone at the Harvard bacteriological laboratory, sending a small fee with it, and get an answer in three days. I thought I would call attention to this method, that all might know how easy it is to get your work done for you, and get it done well. In all the work that Dr. Stone has done for me I find the result seems to prove that the examination was correct. I would like to urge upon the members who are physicians the importance of making a diagnosis just as early as possible on account of the patient and on account of the family.

THE PRESIDENT.— If there is nothing more to be said upon this subject, the chair will be happy to entertain a motion to adjourn.

The meeting was then adjourned.

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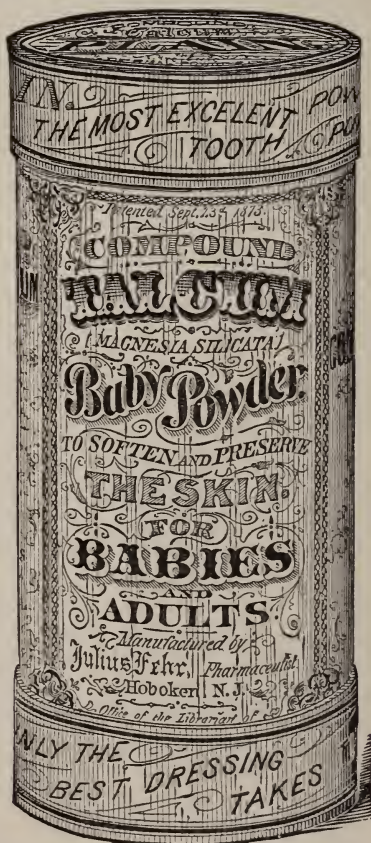
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# MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH.

*Organized 1890.*

[This Association as a body is not responsible for statements or opinions of any of its members.]

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## OCTOBER QUARTERLY MEETING

OF THE

### Massachusetts Association of Boards of Health.

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The quarterly meeting of the Massachusetts Association of Boards of Health was held in Cambridge on the afternoon of Thursday, October 25, 1894, the Vice-President, S. H. Durgin, M.D., presiding.

THE VICE-PRESIDENT.—The Association is complimented this afternoon by the presence of the chief executive officer of Cambridge, and it gives me pleasure to introduce to you his Honor, Mayor Bancroft.

HON. WILLIAM A. BANCROFT, of Cambridge.—I value the opportunity of standing a moment before you, and of speaking a word of pleasure because you have determined to meet within the borders of this city, and also a word in appreciation of the work in which you find yourselves engaged. I speak with respect, I speak with reverence, if that is a proper term to use, if that is a proper attitude for one man to take toward others, when I consider what you are about. I do not know of any duties that are performed in our midst which indicate more of a public spirit, more devotion to the public welfare, than are the duties which are performed in connection with the health of the community.

I address, I understand, gentlemen of professional attainments; but there are others, laymen, who have devoted themselves to this work. I know

something of the perplexities, I know something of its care, I know something of the delicacy of the problem in which you exercise the police power with which you are entrusted. I have thought of the very great progress which our community has made in this matter of sanitation. It is the change of conditions from the open country, with here and there a farmhouse, to the crowded city, which has made necessary work such as you have done and are doing. It is not dirt scattered, it is dirt concentrated, it is accumulation of dirt which makes boards of health necessary. I have thought how fine it would be if the community were educated to a point which you, gentlemen, have reached. I have the matter of cleanliness forcibly brought to my attention as a member of the militia force of the city. It seems to me that there was not the attention paid to it once that there is now. I can well remember that we regarded it as an interference if one of the medical officers made an effort to have our quarters kept clean.

I see you have put barrels in your streets, so that the people will not throw paper and waste in the streets. I have seen barrels in Watertown and in the city of Newton. This is an indication that the people are beginning to realize the importance of keeping clean in a general sense and in every sense. You cannot get very much ahead of the sentiment of the community, but it is indispensable to keep clean, and the people are beginning to realize it.

I speak in hearty appreciation of what you do because I know what is done here in Cambridge by our own Board of Health. Some of you gentlemen have made it your life-work, and are in a situation to receive compensation for it; but others serve and serve freely for the love of what you are doing.

I thank you sincerely for the opportunity which you have given me of meeting you.

The reports of the last meeting were read and accepted.

The Executive Committee reported that they had considered and respectfully presented to the Association the following names for election to membership:—

F. H. BAKER, M.D., Worcester. H. W. CRONIN, M.D., Millbury

The above-named gentlemen were then duly elected to membership in the Association.

The regular business of the afternoon was then taken up, commencing with a paper on "Death Certificates" by Dr. Wm. Y. Fox of the Taunton Board of Health.

## DEATH CERTIFICATES.

REMARKS OF DR. WM. Y. FOX, OF TAUNTON.

*Mr. President and Gentlemen,*— During the discussion on tuberculosis at our last meeting some use was made of the vital statistics of Springfield, and I noticed that Doctor Chapin classed convulsions and brain diseases among children as tuberculosis. I agree with him that a large number of the deaths recorded as due to convulsions and brain disease are really due to tuberculosis; and such causes of death as marasmus, asthenia, and debility in children might perhaps be added with equal reason.

Now, the very fact that such a classification as this is necessary shows that our statistics, as far as they are dependent upon physicians' certificates, are unreliable.

Statistics, to be of value, should give us facts. That they do not do so in regard to cause of death is well known to all of us who see the certificates of death as they come to the offices of boards of health. A number of certificates are filled out with death assigned to a very indefinite cause or a condition rather than a disease, while in others a single symptom is given; *e.g.*, dropsy. As you very well know, dropsy may be a symptom of valvular disease of the heart, of cancer in various parts, of disease of the kidneys, and of several other diseases. Therefore, when we find dropsy put down as the cause of death, we are just as ignorant of the actual disease as if no certificate had been given.

I have gone over the records of Taunton for the last five years, and find the following "causes of death," which, in my opinion, do not give the information which they should in order to be of value,—in fact, do not give the actual cause at all: albuminuria, ascites, asthenia, cardiac exhaustion, catarrh suffocation, childbirth, colic, coma, congestion of brain, congestion of lungs, congestion of kidneys, continued fever, convulsions, debility, dentition, diarrhœa, disease of brain, disease of pylorus, heart failure, inanition, internal convulsions, jaundice, marasmus, motility, natural causes, œdema of lungs, old age, shock, syncope, tumor.

In 1889,  $21\frac{1}{2}\%$  of the certificates were in this list; in 1890,  $22\%$ ; in 1891,  $21\frac{1}{2}\%$ ; 1892,  $21\frac{1}{2}\%$ ; 1893,  $22\%$ .

This seemed to me a very large percentage of worthless certificates, and I have looked over a few annual reports which happened to be on my desk to see if Taunton physicians are any more lax than physicians in other places; and the result is as follows: in 1893, Haverhill had  $14\%$  of worthless certificates; Worcester,  $12\%$ ; Woburn,  $15\%$ ; Lawrence,  $18\%$ ; Newton,  $11\%$ ; Marlboro,  $14\%$ ; and New Bedford,  $19\%$ .

You may say that I have included some causes in this list that are legiti-

mate ones, but my test is this: "Of what disease did this person die?" If the certificate fails to answer that question, it is of no value whatever. Take, for instance, the term congestion of the lungs. What disease is that? Probably, in most cases, it means pneumonia; but it may mean passive congestion from any one of several causes, and, I know, it has been used in some cases of consumption.

Now, what is the reason we are getting so many of this kind of certificates? Are they given by ignorant practitioners? Of course, a few are; but the majority are given by physicians who are competent to make a diagnosis, and ought to be able to make a certificate which would mean something. Then why don't they do so? Well, in a few instances, I have known the real cause to be suppressed out of regard for the family of the deceased. In case death was the result of syphilis, we can well understand such delicacy. But why should it exist in cases of cancer or consumption?

A still more important factor is carelessness. The physician very probably looks upon the matter simply as an irksome duty, and, knowing that the Board of Health must accept his certificate, no matter what it contains, puts in a symptom which his patient had, and lets it go at that.

Then, again, many times it happens that the physician has not seen enough of the patient and his disease to make an accurate diagnosis. The law says, "A physician who has attended a person during his last illness shall furnish a certificate," etc. He may only have seen the patient once, and that when he was dying. Nevertheless, he is compelled to certify the cause of death. Naturally, as he has not made a diagnosis, he gives some general term, as debility or heart failure. Or, possibly, the last illness is a long one, and the physician sees the patient at long intervals, and, perhaps, not for weeks previous to death. He may have forgotten all about the case, still he is obliged to certify. In fact, the physician who has attended a person during his last illness must certify the cause of death, whether he knows it or not, unless he can shift it onto the medical examiner by saying he supposes the deceased came to his death by violence.

Then, too, there are a good many times when the undertaker finds that there has been no attending physician, and calls on the chairman of the Board of Health, or some physician employed by the city or town for that purpose, as provided by law. How can such chairman or physician get at the cause of death? Get all the facts he can from the family of the deceased, and then guess. He may guess right, and probably does, sometimes. Such cases oftenest occur among ignorant people, frequently foreigners who know little English; and, if any one can tell me how to make an accurate *post-mortem* diagnosis under such circumstances, I shall be glad to learn.

When I honestly can, I suppose death is due to violence, in such cases, and send the medical examiner; but he is not much better off. He cannot

make an autopsy without authority from the district attorney or mayor, which is only given where the suspicion of foul play or violence is quite strong.

Previous, to 1883 the city clerk issued burial permits. In that year the law was changed, and permits have since been issued by the Board of Health. I do not know why that change was made,—probably some here to-day can tell us,—but suppose there was some idea of making an improvement in the death returns. If such was the intention, I believe the law is a failure; nor do I see how it could well be otherwise.

The law says, "No permit shall be issued until a satisfactory written statement containing the required facts, together with the certificate of the attending physician, has been received." That is to say, the undertaker's return must be satisfactory to the Board of Health, but any certificate of any physician must be accepted; and, as any person who chooses to sign himself a physician has as much legal right to do so as the best educated physician in the State, it is difficult to see how boards of health have any control over certificates anyhow. I presume, after the medical registration act is in full force, we can refuse certificates from all but registered physicians.

It is all very easy to find fault, and say this condition of things is wrong, and ought to be remedied; but it is not so easy to suggest the remedy, and, unless we can do so, this discussion to-day will be fruitless.

I sincerely hope some one here will be able to tell us what this Association ought to do about it; for I frankly confess that only two methods suggest themselves to me, both of which have serious drawbacks. However, I will give them for what they are worth. One is talk, and the other is law. By talk I mean that this Association should use its influence on the medical profession through the different medical societies and medical schools, through the medical and popular press, and through individual efforts, to induce physicians to make more accurate certificates.

The law should require the physician's certificate to state a definite disease, unless death is due to violence, accident, or poisoning, and should require it to be satisfactory to the Board of Health. In case no such satisfactory certificate is given, the medical examiner should be required to certify; and, if he cannot make a positive diagnosis in any other way, he should be empowered and required to make an autopsy.

Such a law would not only give us more accurate vital statistics, but would be an additional safeguard against the covering up of deaths from contagious diseases, or from criminal abortions, or from foul play, and would also have a tendency to prevent the criminal neglect of young children, which is too often the real cause of death.

On these grounds I believe this Association would be justified in using its influence to obtain such legislation as I have suggested.

## REMARKS OF S. W. ABBOTT, M.D.

I do not think, Mr. President and gentlemen, that the importance of this subject, the value of a certificate of death, is sufficiently appreciated.

The certificate of death contains several items of variable importance. I have one here, which I will pass around. It consists of two parts, the physician's certificate, and the undertaker's. The principal fact stated in the former is usually incorporated in the latter as Item 6, together with the name of the certifying physician.

Upon the back of each of these forms is printed an extract from the laws relating to this subject.

There are three objects to be secured by the certificate of death :—

1. A record of the death, which can be found at any future time, and which may prove valuable to the survivors of the deceased, in settling questions of importance relative to the disposal of property, life insurance, pensions, etc.

2. The certificate of death may occasionally play an important part in the detection and prevention of crime.

3. The certificate of death is of the utmost importance to all persons engaged in public health administration.

An accurate knowledge of mortality statistics forms the basis of sanitary science. The certificate of death may properly be termed the unit of mortality statistics. In itself a single certificate has but little value for this purpose, but the aggregation or grouping of large numbers of such certificates gives us results of very great value.

The following facts may be obtained by the systematic grouping of such certificates.

1. The total number of the certificates in a given community, whether it be a country, State, city, town, county, or public institution, gives us the total deaths from which the death-rate or ratio of the deaths to the living population may be estimated.

2. From the facts obtained in Item 1 we obtain the mortality by seasons.

3. The grouping of the facts gathered in Item 3 gives the mortality of the sexes.

4. From those presented in Item 5 we have the mortality by ages, which may be separated conveniently into groups, or five and ten year periods of life.

5. In Item 6 we find the facts which are of the greatest interest to us as students of hygiene, the cause of death. By combining the facts in Item 6 with those of Item 1, 3, 4, or 5, we may obtain the relation of different diseases or causes of death to season, sex, color, and age.

6. In other items, 7, 9, 13, and 14, we find an opportunity to note the

## PHYSICIAN'S CERTIFICATE.

Name of Deceased* . . . . .	.....
Date and Place of Death . . . . .	died at ..... 189
Disease or Cause of Death . . . . .	of ..... Duration of Sickness.....

*I certify that the above is true to the best of my knowledge and belief.*

Name and Residence of Certifying Physician,.....

Date of Certificate,.....

\* Or Sex of Infant (not named).

## UNDERTAKER'S CERTIFICATE.

COMMONWEALTH OF MASSACHUSETTS.

No. ....

## RETURN OF A DEATH.

*To the Clerk of the Town in which the Death occurred.*

1. Date of Death . . . . .	.....
2. Name . . . . .	.....
(Maiden Name)* . . . . .	.....
3. Sex, and whether single, married, or widowed . . . . .	.....
4. Color † . . . . .	.....
5. Age . . . . .	..... Years, ..... Months, ..... Days
6. { Disease or Cause of Death . . . . .	.....
{ Duration of Sickness . . . . .	.....
{ By whom certified . . . . .	.....
7. Residence . . . . .	.....
8. Place of Death . . . . .	.....
9. Occupation . . . . .	.....
10. Place of Birth . . . . .	.....
11. Name of Father . . . . .	.....
12. Name of Mother . . . . .	.....
13. Birthplace of Father . . . . .	.....
14. Birthplace of Mother . . . . .	.....
15. Place of Interment . . . . .	.....

Signature of undertaker or other  
person making the return. }

DATED at ....., on ..... 189

\* If a Married Woman or Widow.

† If other than white. (M.) Mulatto. (I.) Indian. If of other Races, specify what.

[Be very particular to fill all Blanks.]

relation of residence (including climatic conditions), occupation, and parentage or race to disease or cause of death.

The relation of occupations to disease and duration of human life is not so easily determined in this country as elsewhere, partly in consequence of the shifting character of the population and the instability of occupations, and partly in consequence of the faulty methods hitherto employed in interpreting the statistics of occupations.

This whole subject of Death Certificates has been considered of so great importance in England as to awaken the attention of the British Parliament; and an investigation has been made by them upon the subject, which has resulted in this recent report from which I will read a few extracts.

One of the chief points taken up in this report is the prevention of crime; and a decided advantage in this direction would be gained by the appointment of a medical officer in every city or district of 20,000 inhabitants, whose duty it should be to investigate every case of "uncertified death" occurring in our own State before burial is permitted. In some of the continental countries of Europe a medical officer is appointed who examines every case of death without exception before burial. The advantage of such a system as a preventive of crime must be acknowledged.

The following recommendations were made by the Parliamentary Committee. Their general scope is quite in harmony with our own needs in Massachusetts.

#### SUMMARY OF PRINCIPAL RECOMMENDATIONS OF PARLIAMENTARY COMMITTEE ON DEATH CERTIFICATION.

(1) That in no case should a death be registered without production of a certificate of the cause of death signed by a registered medical practitioner or by a coroner after inquest.

(2) That in each sanitary district a registered medical practitioner should be appointed as public medical certifier of the cause of death in cases in which a certificate from a medical practitioner is not forthcoming.

(3) That a medical practitioner in attendance should be required, before giving a certificate of death, to personally inspect the body; but if, on the ground of distance or for other sufficient reason, he is unable to make this inspection himself, he should obtain and attach to the certificate of the cause of death a certificate signed by two persons, neighbors of the deceased, verifying the fact of death.

(4) That medical practitioners should be required to send certificates of death to the registrar instead of handing them to the representatives of the deceased.

(5) That a form of certificate of death should be prescribed, and that, in giving a certificate, medical practitioners should be required to use such form.

(6) That it should be made a penal offence to bury or otherwise dispose of a body, except in time of epidemic, without an order from the registrar, stating the

place and mode of disposal, which order, after it has been acted upon, should be returned to the registrar who issued it.

(7) That it should be made an offence to retain a dead body unburied or otherwise legally disposed of beyond a period not exceeding eight days, except by permission of a magistrate.

(8) That the practice of burial in pits or common graves should be discontinued.

(9) That still-births which have reached the stage of development of seven months should be registered upon the certificate of a registered medical practitioner, and that it should not be permitted to bury or otherwise dispose of the still-birth until an order for burial has been issued by the registrar.

LONDON, September, 1893.

In one respect, however, we are far in advance of our English friends; and that is in our inquest laws, which were entirely remodelled in 1877 by the introduction of the medical examiner system.

England still holds on to its musty coroner system with a tenacious grip. The coroner system, established more than a thousand years since, is about as well adapted to the uses for which it was designed as the bows and arrows of that period would be to the uses of modern warfare.

I will close with one or two extracts from the British report, to which I have already alluded, which illustrate this point.

Dr. Ogle, of the British Registration General's Office, reports the following verdicts of coroners inquests in England:—

"This man died from stone in the kidney, which stone he swallowed when lying on a gravel path in a state of drunkenness."

Another,— "Child, three months old, found dead, but no evidence whether born alive."

DR. EDWIN FARNHAM.— I think there is a general agreement of opinion among those familiar with the subject that more correct returns of the causes of death are very desirable. In a large proportion of cases what is returned is not the disease, but the name of its most striking phenomenon, or in some cases a term that is indicative of a mode of dying.

Again there are returns that violate all sense. Recently the following cause of death certified to by a physician came before me,— "Gastric neurasthenia of the heart." It may interest you to know that the signer of this certificate died shortly after of softening of the brain. In looking over the death records of Cambridge, I came across the following, the mention of which here will not, I trust, offend any possible descendant,— "John Dooris, Blacksmith, Uterine disease."

DR. CHARLES V. CHAPIN.— I agree with Dr. Fox in thinking that there is a considerable percentage of death returns in which the cause of death as given cannot be relied upon, but I think a part of this is unavoidable.

As we well know, a correct diagnosis is impossible in a certain proportion of cases; and I should prefer to have the physician say, "I don't know," rather than make a wild guess. I think, however, that in such cases a short account of the case is often of assistance. A good many poor certificates are due to the carelessness of the physician, and constant correspondence with and drumming up of those that are thus negligent will do more than anything else to educate them to a proper care in performing this duty.

The remainder of the meeting was devoted to a paper by Edmund M. Parker, Esq., of the Cambridge Board of Health, on "Certain Needed Legislation," and discussion thereon.

## CERTAIN NEEDED LEGISLATION.

REMARKS OF EDMUND M. PARKER, ESQ.

Questions as to the exact extent of the powers of local boards of health are, in one connection or another, constantly presenting themselves to us; and when in any particular instance we have answered to our satisfaction or dissatisfaction, as the case may be, the question of what acts we are or are not authorized to do to remedy a particular evil, the need of some additional legislation, either to make more clear and intelligible the powers which we actually do possess or to confer additional powers, constantly forces itself upon our attention.

It is not my intention to attempt to cover the whole field which this subject, the need of additional legislation, opens up. I wish simply to direct attention to one or two matters which our local board has had occasion to consider lately, and concerning which the need of further legislation has seemed to me especially pressing. I trust that others may be induced to carry the investigation further, to the end that all such powers as may be necessary and proper for the local boards to have and exercise in order to perform their full duty to the community, may be conferred on them, and conferred so clearly and in language so intelligible that it will not be necessary, as it certainly is at present, to have always a lawyer at our elbow to show us the pitfalls into which we will surely tumble but for his aid.

The matters to which I wish especially to direct your attention are the powers of the local boards of health in dealing with and attempting to prevent the spread of contagious diseases; and I deem that the consideration of the exact extent of these powers is particularly worthy of your attention, because I believe that these powers are generally thought to be, in certain respects, much greater than they actually are.

Let us see, therefore, just what our powers are in dealing with conta-

gious diseases. At the outset we should note a difference between cases where the sick person can be removed and those where he is too ill to permit of removal without danger to his health.

When a disease dangerous to the public health breaks out in a town, the board is directed to provide immediately a hospital or place of reception for the sick and infected; and the board may cause any sick and infected person to be removed thereto, unless his condition will not admit of his removal without danger to his health, in which case the house or place where he remains shall be considered a hospital. (P. S., c. 80, § 75.) Both the hospitals provided by the board and places considered as hospitals on account of the presence there of sick persons who cannot be removed without danger to their health are to be subject to the regulations of the board.

Again it is provided in another place (P. S., c. 80, §§ 40, 41) that, where a person is or has lately been infected with the plague or other sickness dangerous to the public health, the board is to make effectual provision in the manner which it judges best for the safety of the inhabitants by removing such person to a separate house or otherwise providing nurses, etc.; and, if the sick person cannot be removed without danger to his health, the board shall make such provision where he is, and may cause persons in the neighborhood to be removed, and take such other measures as it judges necessary for the safety of the inhabitants.

You will notice that the power to cause persons in the neighborhood to be removed, and the power to treat the place where the patient is as a hospital, and subject it to regulations of the board, are both conditioned on the patient's being too sick to be removed without danger to his health. If he is not too sick to be removed, you may remove him or not, as you deem best; but you have no authority to subject the place where he is to hospital regulations, etc.

This scheme was apparently founded on the idea that the sole danger to the community was from the sick person; and no provisions whatever are made to protect against the danger from persons who may have been exposed to the contagion, but who, to use a popular phrase, have not as yet "come down" with the disease.

Having seen thus briefly what we can do in the case of an outbreak of a contagious disease, it may be well to consider certain things which we cannot do.

In the first place the board has no authority as a board of health to seize any place and use it as a hospital against the owner's will. The provisions of the statutes which require and which authorize the board to provide hospitals and make provision for the sick contemplate that the board shall hire a place or places for a hospital and for caring for the sick, and shall

hire nurses, etc., and purchase supplies therefor; but no authority to seize or impress any place as a hospital, or to seize necessities, nurses, etc., is given to the board.

If anything of this sort is necessary, the board can apply to two justices of the peace, who may issue a warrant to the sheriff, or his deputy, or any constable requiring them, under the direction of the board, to do these things; or, in the language of the old statute of the last century, still preserved in our Public Statutes, to impress and take up convenient houses, lodging, nurses, attendants, and other necessities.

Nor do I understand that we, as a board of health, have any authority to remove a patient against his will. For that we must have a warrant from two justices of the peace, as in case of seizing a house.

Next comes the question of quarantine in its various aspects. If the patient can be removed without danger to his health, we have no authority to treat the place where he is as a hospital, or subject it to hospital regulations, or to restrain those who have been exposed to the disease of their liberty, and so prevent their spreading the disease at will. Still less have we the power, after having removed the patient, to quarantine the persons who have been exposed to the disease, but who have not yet actually become sick with it. Yet I think it will be generally conceded that, in the case of many diseases, small-pox, for instance, that is almost the only effectual method of checking the spread of the disease; and that we ought to have the power to do this.

Coming now to the treatment of infected articles of clothing, we have no power as a board of health to seize, destroy, or disinfect these against the owner's will. We do have the power to require the householder to disinfect such articles to our satisfaction, and, practically, this is in most cases worked out by allowing us to do such disinfecting ourselves; but a matter of this importance ought not to be permitted to depend on the consent of the owner. We should have the right to seize, control, and disinfect, and, if we deem it necessary, to destroy articles which, in our opinion, are infected.

I therefore, in conclusion, recommend that we request, and, if possible, obtain from the legislature, these further powers in connection with the treatment of contagious diseases:—

*First.*— That of seizing convenient houses and other necessities for the care of those sick with contagious diseases.

*Second.*— The power to place in quarantine and isolate those who have been exposed to contagion, until the period for the breaking out of the disease has passed.

*Third.*— To seize, disinfect, and, if we deem needful, to destroy articles which have been exposed to contagion, and which may, in our opinion, spread the disease.

We may well, I think, in this State follow the example of Maine, in which jurisdiction the leading cases on the subject of the powers of local boards of health first arose. Until the passage of the statute of which I am about to speak, their powers were practically identical with ours; but in 1887 the Maine legislature passed an act, two of the sections of which are as follows:—

SECTION 7. Each local board of health constituted under this act shall have power and it shall be its duty:—

III. To guard against the introduction of contagious and infectious diseases by the exercise of proper and vigilant medical inspection and control of all persons and things coming within the limits of its jurisdiction from infected places or which for any cause are liable to communicate contagion, to give public notice of infected places by displaying red flags or by posting placards on the entrances of the premises, to require the isolation of all persons and things that are infected with or have been exposed to contagious or infectious diseases, and to provide suitable places for the reception of the same, and to furnish medical treatment and care for persons sick with such diseases who cannot otherwise be provided for, to prohibit and prevent all intercourse and communication with or use of infected premises, places, and things, and to require, and, if necessary, to provide the means for the thorough cleansing and disinfection of the same before general intercourse therewith or use thereof shall be allowed.

SECT. 18. Any local board of health may direct the destruction of any bedding, clothing, or other articles which have been exposed to infection.

There is another matter somewhat connected with the foregoing on which my friend Dr. Swift, of New Bedford, intended saying a few words; and, as he has been compelled to leave, I will briefly refer to it.

Under Chapter 198 of the Acts of 1885 the School Committee are forbidden to allow a pupil to attend the public schools while any member of the household to which it belongs is sick of small-pox, diphtheria, or scarlet fever, or during two weeks after the death, recovery, or removal of such sick person. Any pupil coming from such household shall be required to present to the teacher of the school a certificate from the attending physician or Board of Health of the facts necessary to entitle him to admission.

It appears that in New Bedford the School Committee and Board of Health have been advised that any pupil who presented a certificate from the attending physician of the facts necessary to entitle him to admission had a right to be admitted, and that the School Committee had no right to require such child to present a certificate from the Board of Health, much as they would like to require one.

If this advice be correct,—and on that point I express no opinion,—there will be no doubt in the mind of any one who has had any experience with

the results of permitting children in such cases to return to school on presenting a certificate from the attending physician that the law should, at least, be so changed as to permit the School Committee to require in all such cases a certificate from the Board of Health.

It is not stating the matter too strongly to say that the certificates issued by those who term themselves attending physicians in these cases are frequently of no value, and often worse.

I am happy to say that we in Cambridge have, whether rightly or wrongly, taken a different view of the question from that of New Bedford, and that the certificate of the Board of Health is now required in all these cases to enable a child to attend school, that of the attending physician not being accepted.

This certificate is issued by the physician to the Board, and only after personal examination by him of the case and its surroundings.

I thank you, gentlemen of the Association, for your courteous attention, and hope that through your aid and efforts our needs in this matter of additional legislation may be met and satisfied.

MR. JAS. C. COFFEY.—I would like to inquire of Mr. Parker through the chair if I understood him aright in saying that we have no authority to remove small-pox patients.

MR. PARKER.—You did.

MR. COFFEY.—I think the objections might be met by the adoption of rules. I know that Mr. Bailey, the counsel for the city of Boston, said at a meeting of this organization that rules made by boards of health were legal and valid now in relation to the matter of school certificates after contagious disease. The Worcester Board of Health were obliged to take into their own hands that power, it having been found that physicians abused the privilege. This was done by an arrangement entered into by the Board and the Superintendent of Schools, so that now all certificates are issued by the Board of Health. The two weeks required after recovery date from the day of fumigation.

Speaking to the question of needed legislation. I don't think interest enough is taken by the members of this organization in legislation affecting boards of health. Take the recent legislation in relation to plumbing. No attention was paid to what we wanted, but the plumbers by their activity and the interest manifested by them obtained what they desired. The proper thing for us to do is for each member to see the representative from his district personally, and impress upon him the necessity for better legislation.

I have the honor to be associated with Dr. Durgin and Judge Smith on the Committee on Legislation of this society. In trying last winter to get a

law passed to make medical examiners see the bodies of all those who die without a physician being in attendance, and certify the cause of death, notwithstanding the fact that we had this society, together with a number, if not all, of the medical examiners of the State with us in advocating the passage of such a law, and also the State Board of Health represented by its secretary, Dr. Abbott, and the framer of the present law, there was in opposition to us one medical examiner who is described as a "good fellow and a hustler"; and we were bowed out of court.

DR. B. F. DAVENPORT.—To prevent children from infected households being returned, in the manner just related, to schools, upon the certificates of physicians, so called, before they have actually passed through the contagious period, may it not become expedient for boards of health to agree upon certain minimum periods before the expiration of which, at least, they will not deem recovery to have become established? Permits for return to school to be issued by the Board only after the receipt of the attending physician's certificate, and a satisfactory verification thereof.

Such a regulation has been adopted by the Board of Health of Watertown, in its code, which is as follows:—

REGULATION 21. No pupil shall attend the public schools while having whooping-cough, or while any member of the household to which such pupil belongs, or occupant of the house in which he dwells, is sick of small-pox, diphtheria, scarlet fever, measles, or any other disease which, in the opinion of the Board, may endanger the public health. Nor shall any such pupil attend within a period of two weeks after the recovery, death, or removal of any such person, and the disinfection of the household to the satisfaction of the Board. Recovery will not be deemed by the Board to have been established before at least two weeks have elapsed since the beginning of the attack in case of measles, of four weeks in case of small-pox or diphtheria, and of six weeks in case of scarlet fever. Any pupil coming from such a household shall, before admission, present to the teacher of the school a permit from the Board of Health, which permit will be granted only after the Board has received a notice from the attending physician that it is now, in his opinion, safe to have the pupil attend school.

Although these minimum limits may at times occasion unnecessary exclusion from school, yet it will be for the public interest that the individual loses a little extra time rather than by returning too early the life and time of many others be thereby endangered.

MR. COFFEY.—I want to say that we have established in Worcester since September 1 a bacteriological department. It is working well, and has already demonstrated its usefulness. It has the support of practically all the physicians of the city.

We have had several cases which the attending physician thought was diphtheria; but no Klebs-Loeffler bacilli were found, and consequently the

patients and their families were saved a lot of trouble, not to mention the expense. We also have had cases which the physician thought was nothing but ordinary sore throat, yet we found Klebs-Loeffler bacilli, thus proving its usefulness.

We have not as yet made any formal rule to remove quarantine until a bacteriological examination fail to find Klebs-Loeffler bacilli; but in practice, through the co-operation of the attending physician, we are doing just that. I have already said it is working well, and has already proved its usefulness.

DR. DAVENPORT.—*Mr. Chairman*,— I wish to call the attention of this Association to the hearings which are now being held before the State Board of Harbor and Land Commissioners, acting under a resolve passed by the last legislature. The question which is principally in dispute is, What would be the sanitary effect of constructing such a dam in the tidal basin of Charles River as was proposed in the joint report of the Metropolitan Park Commission and the State Board of Health? Believing for myself that it would be greatly for the benefit of the public to have the recommendation of these two very able boards adopted, I wish that this Association would discuss the subject, express its opinion, and forward its conclusion to the Harbor and Land Commission, who would doubtless give them due consideration.

After a brief discussion, the following resolution was offered by Dr. Davenport, and was unanimously adopted by the Association, and a copy ordered to be sent to the Harbor and Land Commission.

*Resolved*, That the Massachusetts Association of Boards of Health approves the report of the Metropolitan Board of Park Commissioners and the State Board of Health, especially of that part relating to the building of the dam in the Charles River Basin.

The meeting was then adjourned.

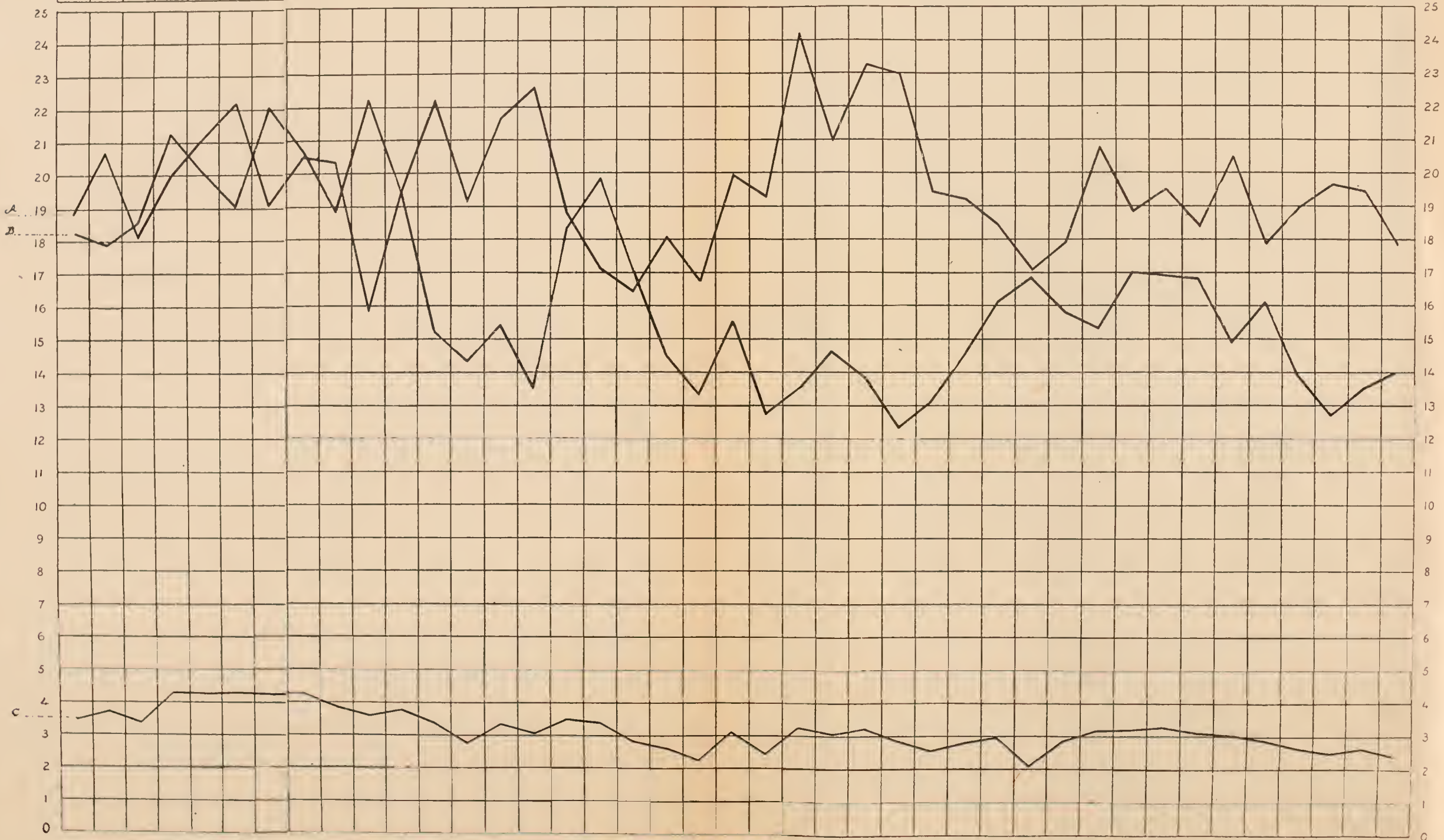
# Cambridge

A-----Mortality per 1000 living at all ages from all causes 1850 to 1890.

B-----Percentage of deaths from Phthisis in deaths from all causes 1850 to 1890.

C-----Mortality per 1000 living at all ages from Phthisis 1850 to 1890.

	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
A	18.79	20.65	18.07	19.99	21.11	22.17	19.08	20.47	20.31	15.87	19.37	22.15	19.13	21.62	22.56	18.82	17.10	16.41	18.06	16.73	19.93	19.26	24.16	20.98	23.24	22.97	19.42	19.18	18.40	17.07	17.92	20.75	18.82	19.48	18.39	10.48	17.89	18.96	19.64	19.41	17.81
B	18.18	17.8	18.5	21.2	20.0	19.0	22.0	20.6	18.8	22.2	19.4	15.2	14.3	15.4	13.5	18.3	19.8	17.1	14.5	13.3	15.5	12.7	13.5	14.6	13.8	12.3	13.1	14.5	16.1	16.8	15.8	15.3	17-	16.9	16.8	14.89	16.1	13.9	12.7	13.5	14.0
C	3.41	3.68	3.34	4.24	4.22	4.24	4.21	4.22	3.81	3.56	3.76	3.37	2.74	3.33	3.05	3.50	3.39	2.82	2.62	3.23	3.10	2.44	3.26	3.07	3.22	2.84	2.54	2.79	2.97	2.08	2.84	3.18	3.20	3.30	3.12	3.05	2.88	2.64	2.30	2.63	2.39





INDEX VALUE OF CURVES REPRESENTING PERCENTAGE  
OF DEATHS FROM PHTHISIS IN DEATHS FROM  
ALL CAUSES.

(Omitted from Report of a previous meeting.)

REMARKS OF EDWIN FARNHAM, M.D., OF CAMBRIDGE.

I wish to call the attention of the Association to the three curves on the accompanying diagram. The upper two curves represent respectively (line A) the mortality per thousand living at all ages from all causes, and (line B) the percentage of deaths from phthisis in deaths from all causes. The lowest curve (line C) represents the mortality per thousand living at all ages from phthisis. As the percentage curve is sometimes used as a measure of the amount of a disease or of the deaths due to that disease, I will compare the two curves relating to phthisis; namely, those indicating its mortality and its percentage. In the forty years, 1851 to 1890 inclusive, these curves rose or fell together twenty-one times: one rose while the other fell nineteen times; *i.e.*, there was agreement in twenty-one, and disagreement in nineteen years. It seems that for the forty years in Cambridge under consideration the index value of the percentage curve has been little. For another series of years, or in a different place, it might be otherwise; but I think that the rise and fall are governed by the varying number of deaths from all the other causes far more than they are by the fluctuations in the number of deaths from phthisis.

## ENGLISH REGULATIONS FOR CLOSING SCHOOLS BY ORDER OF BOARDS OF HEALTH.

(Omitted from Report of a previous meeting.)

REMARKS OF S. W. ABBOTT, M.D.

MR. CHAIRMAN.— This is a peculiarly practical question, and involves many points which are worthy of careful consideration. To my knowledge it has presented itself in the following cities and towns within the past two or three years, and is also mentioned in the reports of the boards of health of other places. Those cities and towns were Pittsfield, Worcester, Attleboro, Melrose, Palmer, Nahant, Norwood, Bridgewater, Concord, Great Barrington, Plymouth, Canton, and Falmouth.

The following questions are liable to arise in connection with this subject: (1) Whether a school should be closed or not; (2) How long should it remain closed, and when should it be opened? (3) For what diseases should a school be closed? (4) What treatment should the school-house receive after closing (with reference to disinfection and other means of cleansing)?

Much depends on the harmonious action between the Board of Health and the School Committee, hence it is desirable that a conference of these two authorities should be held in such cases. The closing of a public school is a serious matter; and this measure ought not to be taken without serious consideration, especially in a large and well-attended school.

Boards of health occasionally adopt measures which are unwarranted and arbitrary with reference to the restriction of the spread of disease. Here is an example.

### NOTICE.

The Primary School is closed until further notice on account of Scarlet Fever. As a precautionary measure, parents are requested to quarantine their children.

.....1893.

By order of the Board of Health.

In this instance the Board of Health not only closed a school, but requested the families (whether sick or well) to quarantine their children; and yet scarlet fever did not exist in more than three families in the town.

English experience upon this point is valuable. I will therefore quote a few paragraphs from the recent circular of the Local Government Board of England, which are so valuable that it was thought best to print the circular in the last report of the State Board of Health (23d Report, 1891, p. xvi).

2. In the Code of Regulations approved by the Committee on Education the following article prescribes, as one of the general conditions required to be fulfilled by a public elementary school in order to obtain an annual Parliamentary grant, that "the managers *must at once comply with any notice of the sanitary authority of the district in which the school is situated, requiring them for a specified time, with a view to preventing the spread of disease, either to close the school or to exclude any scholars from attendance; but after complying they may appeal to the department, if they consider the notice to be unreasonable.*"

3. The diseases for the prevention of which school closure or the exclusion of particular children will be required are principally those which spread by infection directly from person to person, such as scarlet fever, measles, diphtheria, whooping-cough, small-pox, r  theln, the order in which the several diseases are here given being about that of the relative frequency with which their occurrence gives rise to these questions at school. More rarely, the same questions arise in connection with enteric fever, and diarrh  al diseases which spread, not so much by direct infection from person to person, as indirectly through the agency of local conditions, such as infected school privies.

4. It will be seen that the article quoted above confers upon sanitary authorities an alternative power with respect to public elementary schools.

(a) To cause particular scholars to be for a specified time excluded from attendance, or

(b) To require the school to be closed for a specified time.

5. (A) First, as to exclusion from school of particular scholars. Here it will be convenient to consider the circumstances under which the requirements of the public health will be satisfied by the less severe measure of the exclusion from school of particular children.

(a) It may be laid down as a universal principle that all children suffering from any dangerous infectious disorder (*i.e.*, of a nature dangerous to some of the persons attacked by it, however mild in other cases) should be excluded from school until there is reason to believe that they have ceased to be in an infectious condition.

(b) Furthermore, as it is rarely possible to provide effectual separation of the sick from the healthy within the homes of children of the class attending public elementary schools, it must commonly be necessary that all children of an infected household should be excluded from school: first, because otherwise such children might attend school while suffering from the disease in a latent form or at an unrecognized stage; and, secondly, because it is known that infection may attach itself to and be conveyed by the clothes of a person living in an infected atmosphere, even though the person himself remain unaffected. The same considerations will sometimes make it desirable to prohibit the attendance at school of all children from a particular street or hamlet.

In the case of infectious diseases involving little or no danger to life, such as mumps or skin diseases, school interests may be more particularly considered. In such case, however, the rule of prohibiting the attendance of every child while in an infectious state will commonly prove to be the right one; for, if disease should spread to other scholars, owing to the continuance of an infected child at the school,

there will be greater ultimate loss of attendance with corresponding loss of credit to the school.

6. (*B*) Secondly, as to the closing of schools. This, by more seriously interfering with the educational work of a district, is a much more grave step for a sanitary authority to take than to direct the exclusion of particular scholars. It is a measure that seldom ought to be enforced, except in presence of an actual epidemic, nor even then as a matter of routine, nor unless there be a clear prospect of preventing the propagation of disease, such as could not be looked for from less comprehensive action. The mere fact that in an epidemic many of the sufferers are school children does not necessarily show that the disease was caught at school; but the school may with probability be regarded as spreading infection if in a large majority of households attacked the first case be a child attending school, and with still greater probability if a number of children living at a distance from one another, and with no circumstances in common except that they attend the same school, should be simultaneously attacked, and if it can be ascertained that a child or teacher in an infectious state has actually been attending the school.

9. In deciding whether an outbreak of infectious disease among children of school age may be best combated by closing the school, or whether it will suffice to exclude the children of infected households, the two most important points to be considered are: the completeness and promptness of the information received by the officers of the sanitary authority respecting the occurrence of infectious cases; the opportunities which exist for intercourse between the children of different households elsewhere than at school.

10. The more prompt and full the knowledge of cases of infectious disease that the sanitary authority are able to obtain, the better will be the prospect of checking such disease by keeping away from school the children of infected households, and the less will be the necessity for closing schools. If the cases be few in number and their origin known, the exclusion from school of the children of infected households will probably suffice; but this measure will fail where there are many undiscovered or unrecognized cases, or where the known centres of infection are peculiarly numerous.

Commonly, the failure of carefully considered measures of exclusion to stay the spread of an epidemic which shows a special incidence upon school children may be regarded as pointing to the continued attendance at school of children with the prevalent disease in a mild or unrecognized form; and a strong case will appear for the closing of schools.

If, by reason of the absence or exclusion of a large number of children the attendance at a school be greatly reduced, it may be found better to close it altogether. This is especially apt to occur in the case of epidemics of measles, a disease which is very infectious in the early stages, before the characteristic rash has appeared, and while the symptoms resemble those of a common cold.

11. The second material consideration, in deciding as to the desirability of closing schools during the prevalence of infectious disease, is the amount of opportunity for intercommunication between the members of different households elsewhere than at school. In sparsely populated districts, where the children of

different households or of separate hamlets rarely meet except at or on their way to, the village school, the closing of the school is likely to be effectual in checking the spread of disease. It is less likely to be useful in a town or compact village (particularly where houses are sublet and yards are in common), where the children of different households, when not at school, spend their time in playing together, and often run in and out of each other's houses. In some such places the closing of school has even appeared to do harm rather than good.

In rural districts, where epidemic diseases are less frequently prevalent, school closing may be required as an exceptional measure to meet an exceptional state of things. As regards more populous places, it must not be forgotten that, if schools were to be closed whenever an infectious disease was prevalent, there are many places where schools would hardly ever be open. It will sometimes be necessary to close a school for a day or two to allow of the rectification of sanitary defects of a nature to extend disease or in order that the school may be disinfected or purified. It has happened that infectious sickness in the master's family has forbidden the attendance of scholars. These more temporary and occasional closures of schools are contemplated in the education code, and are to be regarded as having a real importance of their own.

12. In places where there are several public elementary schools, if an outbreak of infectious disease be confined to the scholars of one particular school, it may be sufficient to close that school only. But, where different schools have all appeared to aid in the spread of disease (though perhaps to an unequal extent), the sanitary authority may consider it advisable that all should be closed, lest children in an infectious state who previously attended the schools that are closed should be sent to others that might remain open.

It must be remembered that sanitary authorities have no power in respect of Sunday-schools or other private schools, except in so far as these may contravene section 91 (5), section 126, or other provision of public health act, 1875; but it will often be expedient to invite the co-operation of managers of such schools in efforts for securing the public health. Experience shows that they are usually ready to defer to the representations of the authority responsible for the public health of the district.

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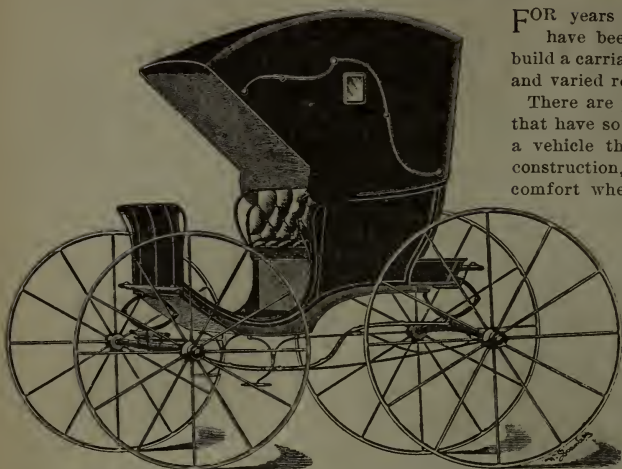
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*Showing Hood broken back.*

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BOARDS OF HEALTH

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RECORDS OF

October Quarterly Meeting  
1894

**S**UBJECTS: Death Certificates; Certain Needed Legislation; English Regulations for Closing Schools by Boards of Health; Index Value of Curves Representing Percentage of Deaths from Phthisis in Deaths from All Causes (with diagram).

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